

Cercopid Spittle Bugs of the New World

(Hemiptera, Auchenorrhyncha, Cercopidae)

Cervasio Carvalho & Mick Webb



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(HEMIPTERA, AUCHENORRHYNCHA, CERCOPIDAE)

by
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&
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Photo: Premaphotos Wildlife

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FOREWORD

*“The successively expanding volumes of the Zoological Record give us a picture of systematic zoology being smothered under the products of its own activity. The confusion will grow steadily worse unless systematists come to realise that the mere description of new species is a far less important thing than the putting in order those that are supposed to be already known, and until, on the other hand, zoologists in general cease to regard taxonomy as a kind of menial drudgery to be done for them by museum curators.”**

This lament could hardly be more appropriate for the systematics of the superfamily Cercopoidea, commonly known as froghoppers or spittle bugs. Some 2,500 species of these insects have been catalogued in three families (Metcalf 1960-1962) of which less than 30% have *ever* been adequately described or illustrated; many are incorrectly placed to genus or even to family; and the whole has been forced into a highly artificial higher classification that dates back to the earliest works when characters distinguishing spittle bugs were only just being discovered. As a result, it is almost impossible to identify most spittle bug species without reference to type material, and in many cases their generic and even subfamilial position is questionable.

In this context, the fauna of the some of the largest and most colourful of New World spittle bugs is a good place to begin the process of redescription. These insects belong to a fairly homogeneous (and almost exclusively Neotropical) family-group taxon, variously treated as a subfamily Cercopinae, or as the subfamily ‘Tomaspidiinae’ of a more narrowly defined family Cercopidae (those spittle bugs with narrow heads and globose eyes).

The current work may be considered to be a revision and expansion of Fowler’s 1894-1909 review of the Neotropical spittle bugs in “Biologia Centrali-Americana” which listed and illustrated in colour 35 species of Cercopinae, all assigned to the genus *Tomaspis*, plus one species in a second genus *Neaenus* which was incorrectly referred to the subfamily Ptyelinae (=Aphrophorinae). The present text discusses more than 500 species of the Cercopinae, including examination of the types of nearly all the New World species, and illustration of the type-specimens in colour as well as in detailed line drawings. It is hoped

* W.T. Calman (1930) quoted in *Tymbal* 20: 11 (1994).

that this will enable recognition of the taxa, whether described, known but unnamed, or as yet undiscovered, so that eventually accurate identification becomes possible.

At the same time, this study serves to provide valuable information bearing on the higher classification of Cercopoidea. Based on this information, the narrow-headed ('cercopid') spittle bugs that make up most of the Neotropical fauna prove to be a single tribe closely related to the still larger and more brightly coloured Old World tropical tribe Cosmoscirtini (=Trichoscirtini, Suracartini). Within the New World fauna, 'natural' relationships are becoming evident and sounder generic placements are made possible. Such work will lay the foundation for future taxonomic studies from the Neotropical region.

Andy Hamilton, March 2005

1. INTRODUCTION

The Cercopoidea (froghoppers) form the largest xylem-sap sucking insect group in the World. The largest family, the Cercopidae (referred to here-after as cercopids), are characterized by their bright colour patterns and, together with the closely related Aphrophoridae, are commonly referred to in English as spittle bugs, due to the copious amounts of protective frothy excreta produced by their young (see ‘Biology – Excretion’ below). Froghoppers differ from the superficially similar leafhoppers (Cicadellidae) in having the hind tibia with one row of 1-5 immobile spines rather than four rows of numerous setae, similar to the more distantly related planthoppers (Fulgoroidea); all three groups, as their common names suggest, are extremely proficient at jumping (Burrows, 2003). Cercopids feed on a variety of plants but in the New World are best known for their feeding on pasture grasses (Plate 16) and sugar cane, hence their common Latin American names of ‘cigarrinhas-das-pastagens’ and ‘cigarrinhas-da-cana-de-açúcar’ (little cicadas of the pastures and sugar cane) (see ‘Biology – Economic impact’).

Despite their widespread occurrence in tropical ecosystems and their agricultural importance, it has not been possible hitherto to identify and classify many New World cercopids accurately. Although some colour habitus figures in the literature have undoubtedly helped in this respect, for example those given by Fowler (1897, reproduced on website: <http://www.sil.si.edu/digitalcollections/bca/>), such figures have not always been from the type specimens, deposited mainly in various European museums. Other difficulties have arisen because cercopids are conservative in body shape, there is convergence of colour patterns between taxa and there is a paucity of adequate descriptions and keys in the literature, particularly with respect to the male genitalia. In addition, in some cases there is considerable intraspecific variation in colour pattern (see Hamilton 1977, figs 9-11), and male genitalia (see Figs 233-237), as a result of which the numbers of subspecies and varietal names are particularly high in this group. Further intraspecific variation occurs in the degree of swelling or angling (in profile) of the postclypeus (see Hamilton, 1977: figs 1-4) which can be as a result of sexual dimorphism, as is also the case with the strikingly flattened face in males of *Carachata dimorphica* Carvalho & Sakakibara (Figs 1i, j), compared to the swollen face present in the female and in most other Cercopidae.

In order to find new characters to separate and classify the New World Cercopidae a study on their male genitalia was undertaken by Peter Broomfield (ex Natural History Museum, London), but this remained incomplete. At about the same time and earlier, doctoral studies on the taxonomy of the group had been undertaken by Carvalho (1992) and Costes (1971) and some new species (arising from both Costes and Broomfield's work) have recently been described (Carvalho & Webb, 2004 and Costes & Webb, 2004). The current work includes figures (mainly from Broomfield's unpublished study) or references to figures of nearly all the New World species (see 'Material and methods – Figures and figured specimens'), together with a list of the known taxa and their types (most of which have been examined) with accompanying notes where applicable (see annotated check-list).

Metcalf's (1961) cercopid catalogue includes all available literature up to 31st December 1955. Compared to other regions, the New World fauna was stated therein as the second largest with 294 species (including infraspecies?) compared to the largest ('Malaysian' = the Pacific islands north and West of New Guinea) with 350 species. In the present study 566 nominal species/subspecies are listed, of which 90 are treated as junior synonyms and one as a *nomen nudum*, leaving 475 as valid names. Of these, only two (*Prosapia ignipectus* Fitch and *P. bicincta* (Say)) occur in the Nearctic region. Three publications (Jacobi, 1942, Lallemand, 1954 and Guagliumi, 1956) and the new taxa they contain, plus *Sphenorhina sipolisi* Fallau (1890), were omitted from Metcalf's (1961) catalogue whilst two species, *Tomaspis basirufa* Melichar and *Tomaspis jamaicensis* Distant, were wrongly recorded from the New World. The former is from São Tomé, West Africa and the latter (Fig. 2), also from Africa, is a junior synonym (Fennah, 1968: 170). Similarly, with respect to *Monecphora rufopicea* (Walker) (type missing), although described from Colombia and placed in *Tomaspis* by Metcalf (1961), the original description of its pronotum indicates that it is an African species of the genus *Locris* or allied genus (pers. com. Andy Hamilton). In addition, *Cercopis marginata* Fabricius belongs in Cercopidae (new placement) as does *Neaenus* Fowler (Fennah, 1968: 170), and *Monecphora xanthocephala* Walker belongs in Aphrophoridae (Fennah, 1968: 170). These were included by Metcalf (1962a, b) in Cicadellidae, Aphrophoridae and Cercopidae respectively.

Metcalf is cited here as the sole author of the Cercopoidea parts of his catalogue, as given in the volumes. However, it should be noted that Virginia Wade finished these parts after Metcalf's death in 1956 and hers is the only name that appears on the species index, while the introductory sections are given as Metcalf and D. Young.

2. CLASSIFICATION

From early studies (e.g. Amyot and Audinet-Serville, 1843 and Stål, 1866), froghoppers (Cercopoidea) were divided into two groups, Cercopides or Cercopida (head narrower than pronotum, with globular eyes and straight anterior pronotal margin, as in Plate 1: A) and Aphrophorides or Aphrophorida (head as wide as pronotum, or wider, with transverse eyes and convex anterior pronotal margin, as in Plate 2: C). Since then (with respect to the New World fauna), *Clastoptera* Germar (Plate 2: A, B), with folded wing tips, has been accepted as a separate family (Clastopteridae Dohrn, 1859) and recently a new family (Epipygidae Hamilton, 2001) was described for *Eicissus* Fowler and two new genera. Preliminary DNA studies (Cryan, in press) support the monophyly of Cercopidae together with the sister-group relationship with a possible paraphyletic Aphrophoridae and a sister group relationship between Machaerotidae (Old World) and Clastopteridae (New World). However, based on morphological characters, Hamilton (in prep.) has suggested that the Aphrophoridae belong to the true Cercopidae. With respect to their nymphs, Cercopidae and Aphrophoridae produce slightly different spittle masses to Clastopteridae (see ‘Biology – Excretion’) and Epipygidae may have free-living nymphs.

The New World Cercopidae were referred to as Tomaspidinae Schmidt by Fennah (1968) and subsequent authors but since the tribal names Ischnorhinini and Tomaspidini were first used by Schmidt in 1920 and 1922a respectively, the correct subfamily name is Ischnorhininae, following the principle of priority (ICZN 1999, Art. 23). A tribal classification for the New World cercopids (in the form of a key), together with keys to most genera, was given by Fennah (1968) and characters for the group were reviewed by Fennah (1968), Costes (1971) and Carvalho (1992). New World Cercopidae (Ischnorhininae) are mostly distinguished by the complete fusion of the subgenital plates to the pygofer (Fig. 3g), while in the Old World fauna this fusion is partial (Cosmoscartinae) or does not occur (Fig. 2e) (Cercopinae). In addition, the subgenital plates are frequently fused to each other basally, and occasionally are entirely fused (Fig. 5j), the ovipositor usually has short to long basal processes (arrowed in Fig. 1k), and the hind tibia usually have two lateral spines (Fennah, 1968). Tribal characters, as used by Fennah (1968), include mainly those of the postclypeus, i.e. overall shape and presence or absence of carinae (Figs 1b, 1e, 1f) and ventral lobes (‘eminences’) (Fig. 1g). However, Fennah (1968: 166) realized that these characters were not always reliable indicators of affinity and in his tribal key

some couplets appear contradictory, and some of the above characters are of variable interpretation. In addition, Fennah (1979) indicated that the leg characters, used in his key, were also unstable in some genera and one genus, *Tiodus* (Nast), was keyed out in two different tribes. Four genera (*Carpentiera*, *Lujana*, *Orodamnus* and *Hemitomaspis*) were also omitted from Fennah's (1968) key.

The figures of the head given here in Fig. 1 represent, to a large extent, the differences given by Fennah (1968) between the four tribes, and the arrangement of genitalia figures also generally follows the same scheme. A distinctive feature of some Neotropical cercopids is the laterally compressed postclypeus (Figs 1b-c), which reaches its most extreme form in those genera assigned to the Ischnorhinini; based on the swollen postclypeus in most other Cercopidae (Figs 1d-f), and xylem-sap sucking Auchenorrhyncha in general, we consider the laterally compressed condition an advanced feature. Associated with the compressed postclypeus, the face has a sharply-angled fore margin in profile and a ventrolateral oblique ridge (Fig. 1b). However, a similar ridge can also be present in genera with a swollen postclypeus e.g. *Ocoaxo* and some *Hyboscarta*. Genera placed by Fennah (1968) in Neaenini have the postclypeus broad in frontal view (Fig. 1h), without a medial ridge but usually flattened or slightly concave medially and genera assigned to Hyboscartini have a pair of ridges or lobes at the lower margin of the postclypeus (Fig. 1g). All other genera, with the postclypeus moderately to well swollen, evenly or angularly rounded in profile and with or without a medial ridge (Figs 1d-1f), were assigned by Fennah (1968) to Tomaspisini.

It is beyond the scope of the current work to provide a detailed analysis of the New World cercopids, but a very superficial comparison of the male genitalia of the above tribes indicates only limited support for their monophyly. In this connection, for the tribal placement of various genera by Fennah (1968), the following notes apply (all genera included by Fennah (1968) in the first three tribes are listed).

Ischnorhinini: *Tiodus* and *Schistogonia* differ significantly, with respect to the aedeagus and paramere, from the remainder, *Ischnorhina*, *Homalogrypota*, *Neosphenorhina*, *Laccogrypota*, *Typeschata*, *Sphenoclypeana* (= *Guarania*) and *Baetkia*. No known males of *Neolaccogrypota* are known.

Neaenini: *Neaenus* has an unusually enlarged pregenital tergum, *Marcion*, *Simorhina* and *Zuata* have partially fused and ventrally curved subgenital plates (also present in *Hemitomaspis calligata* (Jacobi), Tomapsidini) and *Tapaiuna* has an aedeagus and paramere similar to *Chinina* (Hyboscartini) and *Bradypteroscarta*. No males of *Tomaspisinella* are known.

Hyboscartini: The male genitalia of *Hyboscarta rubrica* Jacobi differs significantly from both *H. melichari* Lallemand and *Chinana argentata* Lallemand. No males of *Hemiplagiophlebotena* and *Plagiophlebotena* are known.

Tomaspidini: *Hemitomaspis miniscula* (Jacobi) has significantly different male genitalia from other New World cercopids in having an elongate Xth segment, totally fused subgenital plates and pygofer and aedeagus lacking a phallobase (see also *H. calligata* under Neaenini, above). Some other genera exhibit unusual genitalia, including *Tropidorhinella* with an unusually shaped paramere, *Iphirrhina* with a strongly ventrally inclined paramere and *Olcotomaspis* and *Hyalotomaspis* with a strongly laterally compressed aedeagus.

Bearing in mind the above classification problems and the different classification schemes proposed by Lallemand (1949), Fennah (1968), Costes (1971), Carvalho (1992) and in Broomfield's manuscript work (see above), no tribal classification has been adopted here, with all taxa included in a single New World subfamily Ischnorhininae Schmidt, pending more detailed studies on the group. Similarly, further work is needed at the generic level. The figures of the male genitalia presented here, together with general external appearance, broadly supports the current generic classification (see Fennah, 1968, 1979, 1985) although some synonymy and re-defining of genera may be necessary. However at the species level, based on similar criteria, several species were found to be misplaced and some others were found to be of uncertain generic placement. In the former case we have grouped the species in question with what we consider to be their more likely congeners, an action that seems more preferable than leaving them in genera to which they do not belong, based on our current understanding.

3. BIOLOGY

The detailed biology of only a few New World cercopid species is known (see economic literature, e.g. Clark *et al*, 1976). The following account relates partly to the Cercopidae in general and within the Cercopidae, mainly to the Neotropical grass-feeding genera (see ‘Economic impact’).

Feeding. Cercopoidea feed almost exclusively on xylem sap and are oligophagous to widely polyphagous on a wide variety of plants. Very generally speaking the Cercopidae tend to feed on herbaceous monocots, the Clastopteridae on flowering trees and shrubs, and the Aphrophoridae on conifers and herbaceous dicots. There are many exceptions to these generalizations however, and some species feed on an extraordinarily wide range of hosts, for example *Philaenus spumarius* (Linnaeus), the aphrophorid meadow spittlebug, may have more recorded hosts than any other phytophagous insect. Unlike phloem sap, xylem is more dilute and under negative rather than positive pressure. For the latter reason xylem feeders have to actively suck sap from the plant, an activity requiring well developed cibarial muscles and a large sucking pump, hence the enlarged facial sclerites housing these structures in these insects. Presumably the wide host range in the group is a consequence of xylem feeding, xylem sap being chemically less defended and rather similar in composition across plant groups.

Within this diversity of hosts, many spittle bugs have an affinity for nitrogen-fixing plants that may provide a richer and more constant source of xylem sap nutrition. The Cercopidae, for instance, have a predilection for plants that have associative nitrogen fixation through root zone bacteria (Thompson, 2004), while many Aphrophoridae prefer legumes, and many *Clastoptera* prefer actinorhizal hosts. Other factors that influence host plant or feeding site selection include concentration of amino acids, tissue toughness, depth of xylem elements, presence of trichomes and growth habit or architecture. In addition, an alternation of hosts in the males of a few species has been recorded, for example in the genus *Iphirrhina*. Species in this genus normally feed on plants of a herbaceous or treelet growth form, but have also been observed feeding in large numbers through the trunks of trees (Plate 9: A), thus raising the possibility that phloem tissue is being utilized (Peck, 1998). This phenomenon may be similar to the mineral uptake of some male Lepidoptera and cicadellids (leafhoppers) from the damp mud of riverbanks. Other observations of a

male limited host are of the cercopid *Huaina inca* (Guérin-Méneville) on an herbaceous plant of the family Solanacea (Plate 15: A) and the grass feeding *Prosapia* on *Ilex*, although in the former case this may have been due to early male emergence (protandry) (Peck, 1998). Plant feeding sites include leaves and stems and in the case of some immatures (particularly of grass feeding species), crowns and exposed roots (Plates 3: C; 14: A). An interesting adaptation is the feeding position of some *Mahanarva* species, which hold their front legs away from the host plant when feeding (Plate 7: A, C).

Excretion. To obtain sufficient nutrients from the dilute xylem sap cercopids ingest excess fluid which, in the soft-bodied nymphs, is excreted with a mixture of air and secretions (Rakitov, 2002) to form a frothy protective covering. In Cercopidae and Aphrophoridae this spittle is light and airy with large bubbles (Plates 12: B; 14: C), whereas in Clastopteridae the spittle is more viscous (Plate 3: A) but due to its 'calcareous' nature may leave a chalky mass after the adults have emerged (Williams, 1923a: 273). Generally in the former two groups the last moult takes place within an air pocket (chamber) surrounded by abnormally large and dry bubbles, allowing the wings to expand and integument to become dry; this is the only time adults occur within the spittle (Plates 4: A; 10: B). In contrast, Clastopteridae undergo their last moult outside their spittle. A curious development has occurred in the nymphs of two *Mahanarva* species, *insignita* and *costaricensis*, which live in water-filled *Heliconia* flowers (Thompson, 1997) but, as in other cercopids, form emergence spittles for the final moult (Plate 6).

Reproduction. In contrast to most temperate spittle bugs that are univoltine most tropical spittle bugs are multivoltine, with lifecycles tied to seasonal rainfall patterns. Mate location is by means of substrate-borne vibrations, as in other Auchenorrhyncha (López *et. al.*, 2001) and coupling takes place with each pair of individuals side by side, facing the same way (cover photo and Plates 9: D; 11, C; 13: A, B), unlike in leafhoppers where they are facing the opposite way. Cercopids lay eggs into soil or leaf-litter and on stem surfaces. Newly hatched individuals wander over the host plant (Plate 14: B), until a suitable succulent feeding site is found (see above). In sugar cane, *Aeneolamia postica* nymphs emerge from eggs in the soil and complete development on surface roots (Plate 14: A), while nymphs of *Mahanarva andigena* emerge from eggs on litter or the base of old leaf sheaths and favour aerial leaf whorls. Soon after feeding the insect is buried in its watery excreta but may move to other feeding sites, even occupying the same spittle masses as other individuals (Plates 3: B; 12: C). Development time varies with species and climate, ranging from 4-9 weeks. Duration of the adult phase ranges from 1-3 weeks.

Natural enemies. Cercopoid egg parasites include Hymenoptera of the families Eulophidae, Mymaridae and Trichogrammatidae and nymphal parasites and predators include nematodes (Plate 5: B), ants and the larva of *Drosophila*, Pipunculidae and the syrphid fly *Salpingogaster nigra* Schiner (Plate 5, C). Adults are taken by generalist robber flies (Asilidae) (Plate 5, A) and fatalities due to fungal entomopathogens also occur (Plate 11, D). In the current work only one parasite, a larva of a tachinid fly (*Strongygaster?* sp.) was found associated with the adult dried material examined (in the abdomen of a syntype of *Laccogrypota praetor* (Jacobi)). In addition, a few specimens examined, e.g. the types of *Maxantonia opulenta* Nast, *Sphenorhina brevispina* Carvalho & Webb and *Sphenorhina nox* (Breddin), have mites attached to the head, sternum and abdomen respectively. These were identified by A. Baker (BMNH) as motile *hypopi belonging to the order Astigmata.

Protection from some predators may be afforded to the immatures by their spittle (Whittaker, 1970) and in the adult by their ability to 'bleed' from the pretarsi when captured. The latter is a reflex response to danger and may be correlated, as in other insect defences, to the corresponding conspicuous colour markings in many cercopids serving to startle predators, permitting their escape by jumping (Peck, 2000). Conversely, in one species, *Tapaiuna antica* (Walker), disturbed individuals fall to the ground and remain motionless (Fennah, 1951: 147). The advantage gained by some species of *Kanaima*, that occur together consistently with one of two xylem feeding leafhopper (Cicadellidae) guilds on *Eryngium* (Apiaceae) (see remarks under *Kanaima*), is uncertain.

Economic impact. Neotropical cercopids are best known for the damage caused to forage grasses and sugarcane by direct feeding, a problem exacerbated by the introduction from Africa of non-resistant plant strains. The following cercopid genera are involved: *Aeneolamia* (Plates 14, A; 16, A-C), *Deois*, *Isozulia*, *Kanaima*, *Mahanarva* (Plate 10), *Maxantonia*, *Notozulia*, *Prosapia* (Plate 11), *Sphenorhina*, *Tunaima* and *Zulia* (Plate 13). Adult feeding causes a phytotoxemia identified by a chlorosis that spreads from the feeding site, while nymphs cause damage similar to water stress, identified by browning spreading from the leaf tip. Severe outbreaks result in the yellowing off of the entire above-ground portion of the plant (Plate 14, A). This damage lowers forage production, quality, and palatability, reduces milk and

* A hypopus is formed at the deuteronymphal stage of certain astigmatid mite families in response to adverse conditions. Motile hypopi do not feed and serve as a means of dispersal to new habitats. Hypopi of many species are carried on arthropods, particularly insects, and have a group of ventral suckers posterior to the last pair of legs that secure them to their host.

beef production, inhibits the establishment and persistence of improved pastures, and increases soil degradation. Nymphs and adults of grass-feeding spittle bugs occur during the wet season with most species passing the dry season as drought tolerant diapause eggs. Depending on species, habitat and duration of the wet season, they achieve 1-6 generations per year. In highly seasonal sites, the return of the wet season promotes synchronous hatching and damaging early season outbreaks. Population dynamics are characterized by high population fluctuations and population synchrony. In continuously humid sites, all life stages are present throughout the year, fluctuations and synchrony are reduced, and yield loss can be less severe. References: Peck (1999), Valério *et al*, (1996), Peck *et al* (2001) and Sujii *et al* (2001).

Plate 1



A, *Tomaspis furcata*, Brazil. Photo: Premaphotos Wildlife



B, *Sphenorhina* sp. West Indies. Photo: Premaphotos Wildlife

Plate 2



A, *Clastoptera obtusa* (Say), U.S.A.
Photo: Rob Curtis



B, *Clastoptera obtusa* (Say), U.S.A.
Photo: Chris Dietrich



C, *Paraphilaenus paralelus* (Stearns), U.S.A.
Photo: Chris Dietrich



D, *Aphrophora cribrata* Walker, U.S.A.
Photo: Giff Beaton

Plate 3



A, *Clastoptera* spittle mass on mistletoe parasitizing a citrus tree, Columbia.
Photo: D. Peck



B, Communal spittle mass of *Cephus siccifolius* (Walker) (Aphrophoridae) in apricot tree, Colombia. Photo: D. Peck



C, *Aeneolamia varia* spittle masses on surface roots of *Brachiaria ruziziensis*. Colombia.
Photo: D. Peck

Plate 4

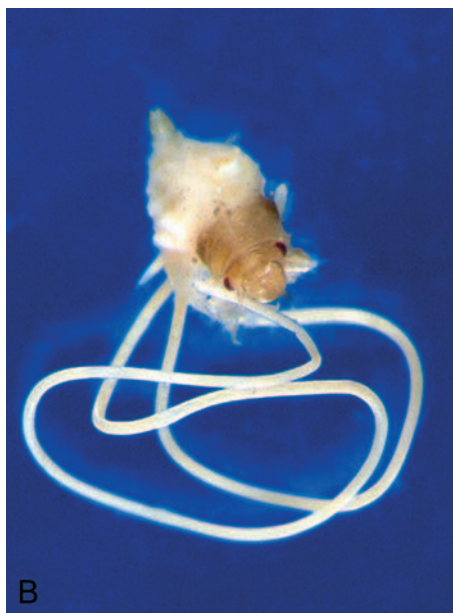


A, Adult teneral *Prosapia* sp., exposed in the fifth instar moult chamber; Costa Rica.
Photo: D. Peck

Plate 5



A
A, Robber fly (Diptera: Asilidae) with
adult *Prosapia* sp. (caught in flight);
Costa Rica. Photo: D. Peck



B
B, Fourth instar nymph parasitized by
nematode (Mermithidae); Colombia.
Photo: D. Peck



C
C, Larva of *Salpingogaster nigra*
(Diptera: Syrphidae) catching *Prosapia*
sp. nymph; Costa Rica. Photo: D. Peck



D
D, *Salpingogaster nigra* larva
(Diptera: Syrphidae), spittlebug
predator. Colombia. Photo: D. Peck

Plate 6



A, *Mahanarva costaricensis* adult emergence spittles on *Heliconia wagneriana*; Costa Rica. Photo: V. Thompson.



B, *Mahanarva costaricensis* adult emergence spittle on *Heliconia pogonantha*; Costa Rica. Photo: V. Thompson.

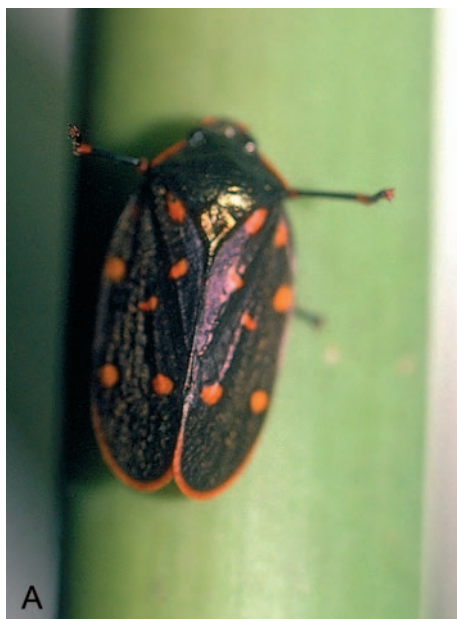


C, *Mahanarva costaricensis* adult emergence spittle on *Heliconia* bracts; Costa Rica. Photo: D. Peck



D, *Mahanarva costaricensis* adult near spittle on *Heliconia* bract; Costa Rica. Photo: V. Thompson

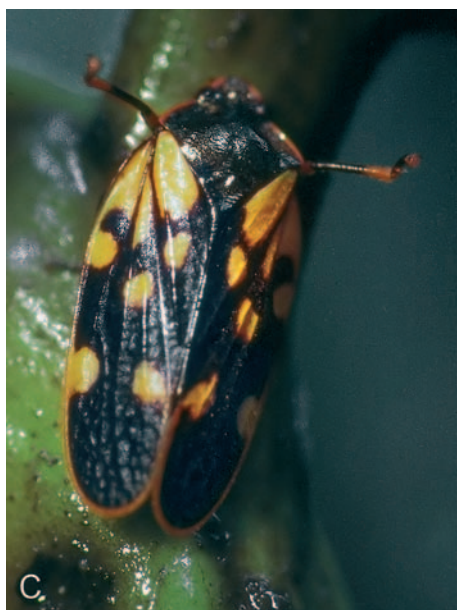
Plate 7



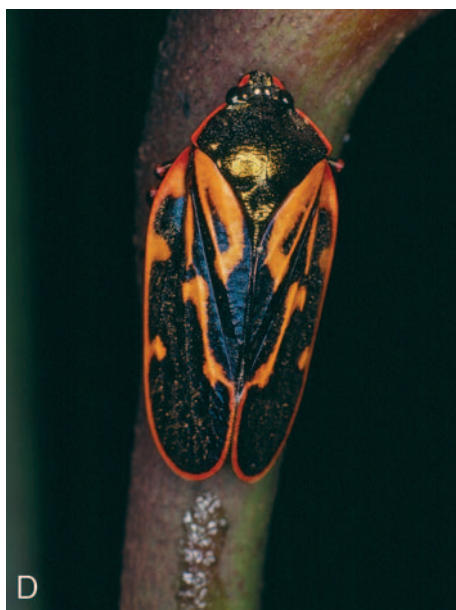
A, *Mahanarva costaricensis* (nominant form)
on stem of *Heliconia*; Costa Rica.
Photo: D. Peck.



B, *Mahanarva costaricensis* (form
semimaculata) on *Heliconia tortuosa*;
Costa Rica. Photo: V. Thompson.



C, *Mahanarva costaricensis*
(form *semimaculata*) on *Heliconia tortuosa*;
Costa Rica. Photo: V. Thompson.



D, *Mahanarva insignita*
on *Heliconia tortuosa*;
Costa Rica. Photo: V. Thompson.

Plate 8



A, Spittle mass of *Mahanarva costaricensis* nymph on *Heliconia* bract; Costa Rica. photo: D. Peck



B, Spittle mass of *Mahanarva costaricensis* nymph on *Heliconia* bract; Costa Rica. Photo: D. Peck



C, *Mahanarva costaricensis* (form *semimaculata*); Costa Rica. Photo: Premaphotos Wildlife

Plate 9



A, *Iphirrhina quota*; Costa Rica.
Photo: D. Peck



B, *Iphirrhina quota*; Costa Rica.
Photo: D. Peck



C, *Mahanarva andigena* in captive colony from Colombia. Photo: D. Peck



D, Mating pair of *Mahanarva andigena* on sugar cane; Ecuador. Photo: D. Peck

Plate 10



A, *Mahanarva andigena* adult near spittle masses at base of sugar cane; Colombia. Photo: D. Peck



B, *Mahanarva andigena* adult exposed in the moulting chamber of the fifth instar on sugar cane; Ecuador. Photo: D. Peck



C, *Mahanarva andigena* fifth instar and adult on sugar cane; Colombia. Photo: D. Peck

Plate 11



A, Two lined Spittlebug, *Prosapia bicincta*; USA Photo: Jiff Beaton



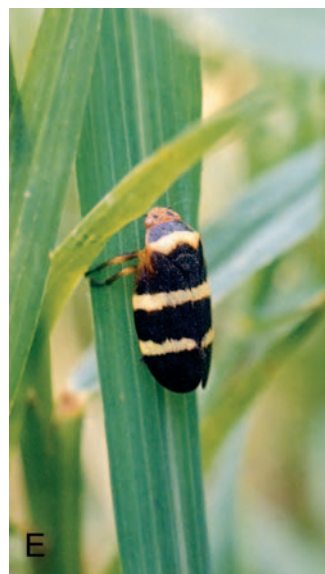
B, Two lined Spittlebug, *Prosapia bicincta*; USA Photo: Jiff Beaton



C, Two lined Spittlebug, *Prosapia bicincta*; USA Photo: D. Peck



D, *Prosapia* sp. fungal cadaver; Costa Rica Photo: D. Peck



E, *Prosapia simulans*; Costa Rica. Photo: D. Peck.

Plate 12



A, *Deois (Fennahia) flexuosa*; Brazil.
Photo: G. Carvalho



B, Unidentified cercopid nymph; Brazil.
Photo: G. Carvalho



C, Unidentified recently emerged first instar cercopid nymphs. Photo: V. Thompson



D, *Tomaspis biolleyi*; Cost Rica.
Photo: D. Peck

Plate 13



A, Pair of *Zulia carbonaria*;
Colombia. Photo: D. Peck



B, Pair of *Zulia carbonaria*;
Colombia. Photo: D. Peck



C, *Zulia carbonaria*; Colombia.
Photo: D. Peck



D, *Zulia carbonaria* feeding; Colombia.
Photo: D. Peck

Plate 14



A, Spittles of *Aeneolamia varia* on sugar cane roots; Trinidad. Photo: V. Thompson.



B, First instar nymphs of *Aeneolamia varia*; Colombia. Photo: CIAT, Colombia



C, Fifth instar nymph of cercopid nymph, Brazil.

Plate 15



A, *Huaina inca*; Costa Rica.
Photo: D. Peck



B, *Huaina inca*; Mexico.
Photo: Chris Dietrich



C, *Huaina inca*; Mexico. Photo: Premaphotos Wildlife

Plate 16



A, *Aeneolamia reducta*; Colombia.
Photo: D. Peck



B, *Aeneolamia reducta* swept from
'colosuana' grass; Colombia. Photo: D. Peck



C, Vinton Thompson and
Dan Peck at CIAT Colombia,
1997. Photo: V. Thompson



D, *Aeneolamia reducta*;
Colombia. Photo: D. Peck



E, The second author (centre)
with the first author and his
wife outside their house in
Porto Alegre, 2002



F, Collecting spittle bugs in *Brachiaria* grass
pasture; Colombia 1997.
Photo: V. Thompson

4. MATERIAL AND METHODS

Abbreviations

The following institutional abbreviations are used throughout the text:

- AMNH The American Museum of Natural History, New York, U.S.A.
BMNH The Natural History Museum, London, U.K.
BDZM The Benedykt Dybowski Zoological Museum, Department of Zoology, Biology Faculty, Ivan Franko National University of Lviv, Hrushevsky str 4, Lviv 79005, Ukraine
DEIE Deutsches Entomologisches Institut, Eberswalde, Germany
DZUP Departamento de Zoologia, Universidade Federal do Paraná, Curitiba, Brazil.
FOC Fundação Oswaldo Cruz, Rio de Janeiro, Brazil.
IMLA Fundación e Instituto Miguel Lillo, Tucumán, Argentina.
HEC Hope Entomological Collection, Oxford University Museum, Oxford, UK.
HMAG Huntarian Museum and Art Gallery, University of Glasgow, Glasgow, Scotland, UK
HNHM Hungarian Natural History Museum, Budapest, Pf. 137, H-1431, Hungary
IBSP Coleção Entomológica Adolph Hempel, Instituto Biológico, São Paulo, Brazil
IRSNB Institut Royal des Sciences Naturelles de Belgique, Bruxelles, Belgium
IESH Instituto de Ecología y Sistemática, Carretera de Varona, Capdevila, Km 3 ½, Boyeros, Ciudad de La Habana, Cuba.
LSL Linnaean Society of London
MCTP Museu de Ciências e Tecnologia da Pontifícia Universidade Católica do Rio Grande do Sul, Porto Alegre, Brazil.
MEFAM Museo de Entomología de la Facultad de Agronomía de Maracay, Venezuela.
MM Moravian Museum, Brno-Slatina, Czech Republic.
MNHN Muséum National d'Histoire Naturelle, Paris, France
MTD Museum für Tierkunde, Dresden, Germany
MNRJ Museu Nacional, Universidade Federal do Rio de Janeiro, RJ, Brazil
MIZW Museum and Institut of Zoology, Wilcza 64, Warszawa, Poland
MPEG Museu Paraense Emilio Goeldi, Belém, Pará, Brazil
MZLU Museum Zoology and Entomology Lund University, Sweden
MZUSP Museu de Zoologia da Universidade de São Paulo, Caixa Postal 42594 –CEP 04299 – 970, São Paulo, Brazil

NCSU	North Carolina State University, Raleigh, NC, USA
NMNH	National Museum of Natural History, Smithsonian Institution, Washington, DC, USA
NMW	Naturhistorisches Museum Wien, Austria.
NRS	Naturhistoriska Riksmusset, Stockholm, Sweden.
NYSM	New York State Museum, Cultural Education Center, Albany, N.Y., U.S.A
UNLP	Facultad de Ciencias, Naturales y Museo, Universidad Nacional de La Plata, La Plata, Argentina.
ZMB	Zoologisches Museum der Humboldt-Universität, Berlin, Germany
ZMUC	Zoological Museum, University of Copenhagen, Denmark
ZMUH	Zoologisches Institut und Zoologisches Museum, der Universität Hamburg, Germany.

Figures and figured specimens

In most cases the figures given are either from type specimens or from specimens compared to the types. For some taxa the male genitalia figures given are not necessarily complete, the emphasis being, together with the habitus figures, on species recognition. For this reason it was considered useful to include habitus images of all nominal species as many synonyms are colour morphs of valid species. As colour pattern is often specific to a given taxon the inclusion of these images greatly facilitates the task of identifying a specimen and knowing whether it may or may not be new. In this context, those few taxa not imaged here, some of which are figured elsewhere, are listed in Appendix 2.

Original external line figures are by Broomfield (see ‘Introduction’) (Figs 1a-f), Carvalho (Figs 1i-k) or Webb (the remainder), and original male genitalia figures (except where indicated) are by Broomfield or Webb. Broomfield’s figures are generally drawn with a finer line, sclerotisation is always shown by finer stippling (see also comments below), setae are drawn with a double line with setal sockets omitted, the aedeagus has the gonoduct shown entire and the connective opening for the base of the aedeagus, in lateral view, is frequently shown as three-dimensional. In the drawings by Webb the sclerotisation and setae are generally not shown but if present the latter are drawn with a single line with setal sockets present, and in the aedeagus only the apex of the gonoduct is shown and the connective opening for the base of the aedeagus (if drawn) is shown two dimensional. Any additional male genitalic structures figured, to those listed above, are by Webb.

The male genitalia figures are labelled consistently as follows:

a, aedeagus, left lateral view

b, aedeagus, anterior view. This view is taken to mean the anterior view as observed from the orientation given here of the lateral figure i.e. with the aedeagal

shaft perpendicular and not the more anatomically correct dorsal view, with the aedeagal shaft horizontal.

c, left paramere, lateral view (drawn entire or without basal apophysis and with setae sometimes omitted)

d, male subgenital plate and adjacent area of pygofer, ventrolateral view, flattened on a slide (Broomfield) or *in situ* (Webb) (see comments on Broomfield's drawings below)

The above explanations for figures a-d are not repeated hereafter in the figure legends. Additional male genitalia structures illustrated are labelled with letters from e onwards but the letters are not used consistently. These structures are explained in the respective legends. Depositories for non-type specimens are all BMNH except where indicated. Depositories for type specimens are given in the annotated checklist, except where type series specimens are located in different collections in which case only the depository of the figured type specimen is given in the legend. Locality or other label data is given to enable recognition of a figured specimen. Where insufficient locality data are present to recognise the specimen, label information is given verbatim (in inverted commas).

For each of the species figured by Broomfield (see above), it was found that one or more genitalia preparations were present in the BMNH collection. Of the preparations for each species, usually one (rarely more) was considered to be Broomfield's i.e. in a contemporary glass vial with cork stopper. This vial was pinned in the species box (in the BMNH collection) next to a specimen lacking its abdomen and in such cases the two are considered to be associated. When more than one dissection was present in the species box, one or more of the following criteria was used to confirm which preparation had been figured: either the figures matched a particular dissection, the genital capsule had been fully dissected and or, the aedeagus showed signs of having been secured in boracic ointment (for drawing purposes). With respect to the pygofer lobe and subgenital plate, Broomfield made drawings of these structures flattened on a slide, which required the separation of that part of the genital capsule. This practice has to be born in mind when comparing the figures given with the three dimensional pygofer *in situ* or in a well of glycerin. Also, sometimes lines and setae of the parameres were drawn by Broomfield from a through-focus perspective, so that these structures are actually on the opposite side, although appearing on the same side, a situation which, when noted, has been corrected. We have also noticed that for many species the pigmentation given for aedeagal and paramere processes is darker than in reality and in any case would vary depending on the degree of maceration. The finer stippling used by Broomfield (see above) has also resulted in further darkening, on reduction of the figure. For some *Mahanarva* species the aedeagal processes were sometimes found to

be in different position to that figured. However, it appears that some movement of these processes in this genus is possible as was observed in different mediums during the preparation of the aedeagus for study, i.e. from maceration in KOH, to washing in water and storage in glycerin. In only a few cases was it not possible to identify the particular specimen figured by Broomfield.

Some effort has been made in the arrangement of figures to facilitate the identification of species. This arrangement should not be taken to indicate any close relationship (see also under 'Classification'). Therefore, some taxa are placed together based on the following:

The direction of the curvature of the apex of the subgenital plate and paramere.
The presence or absence of aedeagal processes and their length, short to long.

Original paintings

The presence of small original paintings in the BMNH collection (unpublished), usually without accompanying specimens, suggests that someone borrowed, and had paintings made, of certain types of Stål and Jacobi. Distant (1909: 188) stated that he had borrowed types of 36 species from Jacobi. Also, the following note (brought to our attention by Lois O'Brien) appears as the introduction to Distant (1906): 'In the preparation of these notes I have been much indebted for the loan of specimens or drawings of unique types to Dr. Aurivillius of Stockholm, Dr. Handlirsch of Vienna, Herr Kuhlitz of Berlin and Mons. Shouteden of Brussels. ... so that I have been able to compare ... much hitherto somewhat inaccessible material with the collection contained in the British Museum.' From a comparison with the above paintings (in a similar exquisite style) in various works of Distant, it is concluded that the figures were almost certainly painted for Distant by his artist Horace Knight. Distant was employed at the BMNH on a part time basis from 1899 and worked on the collection until ill-health made it impossible for him to continue (Dolling, 1991: 8). Previous to his appointment, Distant (1889-1892, in preface) pays tribute to Knight in the following rather curious manner 'I must again bear witness to the faithful work of my artist, Mr. Horace Knight, who has illustrated this publication... I think the entomological artist does not always receive his proper value. How often he makes possible a bad description!'. We interpret this reference as being equivalent to saying 'a picture is worth a thousand words'. For one of Jacobi's species figured by Knight (*Tomaspis trifissa*), Lallemand (1912) also had figured, from the same or a different type specimen (see below). Surprisingly, in this case, the two figures are found to differ with regards to overall body shape and, from a comparison with a syntype, Lallemand's figure is found to be the more accurately drawn in this respect. The Cercopidae from South America painted by Knight (for Distant) in the BMNH collection are reproduced here (Figs 280-303).

Type status

We have used a fairly strict criterion in deciding whether or not a particular type specimen may be regarded as the holotype or syntype of its species. Early descriptions rarely mentioned the number of specimens used, except in Walker's case where he used letters of the alphabet to denote different specimens. We have not therefore accepted unique surviving specimens as holotypes, bearing in mind that some of Distant's type series specimens (in other Hemipterous groups) are known to be missing (see Carvalho & Dolling, 1976: 790). Types are therefore treated as syntypes if no holotype or 'type' (singular) was indicated in the original description even if the specimens themselves are labelled as 'Type' or 'Paratype' (ICZN, 1999, Article 73.1.3 and its recommendation 73F). Sometimes when the word 'Type' was used in a publication it is found to be plural as it is used in conjunction with one or more type localities i.e. Lallemand (see 'Lallemand types', below) and Schmidt (1910).

Some authors, e.g. Fennah and Nast, have subsequently referred to 'the type' or 'the holotype' for a particular taxon, when no primary type was indicated in the original description, probably following specimen labels referring to these terms. There is ambiguity as to the type status of these specimens in the latest International Code of Zoological Nomenclature. Although it was not these authors' intention to designate a primary type they did none-the-less recognize a specimen as the primary type (ICZN, 1999, Articles 74.5, first sentence). On the other hand they did not 'explicitly indicate that' they were 'selecting from the type series' (ICZN, 1999, Articles 74.5, second sentence). In this context it is interesting to note that although Fennah (1953: 348) listed (what are) the two syntypes of *Prosapia plagiata* (Distant), he did not list them both as types and referred to only one of them as 'the type'. Here we consider that in all these cases lectotypes have not been designated.

Following the 'spirit' of the most recent code (ICZN, 1999, Article 74.7.3) as to the necessity of designating lectotypes, only three species in the present work (*Sphenorhina pallida* Lallemand, *Tapaiuna pehlkei* (Schmidt) and *Tropidorhinella inflata* (Jacobi)), benefit from lectotype designation. In any case, for Jacobi and Melichar types the full type series would ideally need to be examined before lectotypes are designated (see next section).

Identifying types

Identifying early type specimens is often a matter of conjecture. Early original descriptions were frequently poor, exemplified by Stål's (1862b: 481) comment that the new species described in Walker's catalogues (various dates) 'are so deficient in scientific value that, they will be declared non-existing' (!). Paradoxically, poor as Walker's descriptions may be, his method of recording the specimens he examined

(see 'Walker types' below) provides a better means of identifying his types than those of his contemporaries! Other original descriptions and old specimens have little or no locality data, and the specimens are not always labelled as types if described before this practice was recommended.

The modern concept of a primary type is credited to Thomas (1893), who restricted the term 'type' to a single specimen and also introduced the terms 'co-type' [= syntype] (following C.O. Waterhouse, no date) and 'paratype'. He also noted the following: *'The word 'type' itself when first introduced was meant to refer to the particular specimen (in the singular) originally described, but it soon was naturally applied to any individual of the original series, if more than one specimen was examined by the describer. In this there was little cause for confusion, but more recently it has been applied to any individual from the collection of the original author, obtained no matter how much later, and often not even determined by him as belonging to his species. Of late a still further cause of confusion has been introduced by certain authors who, obtaining specimens from the typical locality, have spoken of them as 'typical specimens', a method of reference which, although due to a praiseworthy regard for geographical exactness, is yet certainly liable to rise to inconvenience and confusion.'* In this statement the mention of 'first introduced' and 'was meant to refer' implies something published but this reference seems not to be general knowledge, for example it is not mentioned by Mayr *et al* (1953). Much earlier, a different type concept was in use. For example, Whewell (1840) stated that *'A Type is an example of any class, for instance, a species of a genus [and presumably specimen(s) of a species], which is considered as eminently possessing the characters of the class.'* in other words is typical of its class. One unfortunate consequence of this concept was to allow the substitution of an originally described specimen, in poor condition, with a more perfect specimen at a later date. Bearing in mind the above uncertainties, we recognise types here, as those specimens from the author's collection which match the description, and whose data do not disagree with the original recorded data. This includes specimens without type labels or any data (e.g. Fabricius' putative types), if these specimens could have been to hand at the time the species was described. This course of action is preferred to having no type or erecting a neotype.

With the exception of F. Walker (1809-1874), who described specimens in the BMNH collection, most other prominent early authors had their own collections i.e. J.C. Fabricius (1745-1808), E.F. Germar (1786-1853), V. Signoret (1816-1889), C. Stål (1833-1878), W.L. Distant (1845-1922), L. Melichar (1856-1924), G. Breddin (1864-1909) and V.J.T. Lallemand (1880-1965). However, sometimes these authors described material from other collections and their types are therefore to be found in these collections. For example, some Stål and Fowler types were described from Signoret's collection (NMV) and Fabricius described specimens from various museums and

private collections (see below). With regard to the type specimens from Breddin's 1904 publication, these were collected by R. Haensch and are mainly deposited in DEIE (see Gaedike's 1971 list). However, a collection of insects purchased by the BMNH from Haensch (registration number 1903-322), contained a specimen labelled as a co-type of *Tomaspis laqueus* Breddin (also noted by Distant, 1909: 192). Another Haensch specimen, a syntype? of *Sphenorhina erigena* (Breddin), found its way into Lallemand's collection (now BMNH) together with possible type specimens of *S. discoidea* (Melichar) and *Typeschata intermedia* (Schmidt).

Some of Lallemand's new species are as a result of names he gave to the un-named varieties of other authors. This action was taken without further description and possibly without examination of the original material, which become the types of his new species (ICZN 1999, Article 72.4.1). We have accordingly labelled these types, when found, as types with both the original and Lallemand names. Confusingly, Lallemand placed a printed 'type' and 'paratype' labels on specimens (usually syntypes) of each type series from his collection, and when specimens of the same type series from other collections were present he placed a hand written determination label with the word 'type' on one of these specimens. Similarly, Distant placed a hand-written determination label with the word 'type' on one of his type series in the BMNH. This identifies at least one syntype specimen but other type-series specimens (unmarked) are frequently present (see Carvalho & Dolling, 1976).

With respect to the type-series specimens of Jacobi and Melichar, usually only one syntype has been examined, but for many of these species other syntypes are present. For Walker, Distant, Fowler and Lallemand's types in the BMNH, most of the recorded types have been found and appropriately labelled; it is doubtful that any further unidentified type material exists in the BMNH.

Fabricius types

Fabricius's types were described from various collections (see Appendix 3) but nearly all are now housed in ZMUC (Zimsen, 1964). Most of Fabricius's South American species in this collection were redescribed (and examined?) by Stål (1869). The following notes apply to some other Fabricius species not included by Stål.

Cercopis coccinea. The specimen in ZMUC bearing this name, is without data and is identifiable as a species of the African genus *Locris*! Evidence that this is the type is not conclusive as the description is poor (see Appendix 3). However, the original locality for this species is probably wrong as no red species is known from the West Indies and only a single large spine on the hind tibia (a character for the old World cercopids) was mentioned by Fabricius. Also, under the generic heading (in foot-note) Fabricius described *Cercopis* with a swollen face (as in the above

specimen) where as specimens conforming to the current interpretation of *coccinea* have a laterally flattened face. If the specimen in ZMUC proves to be the type then *Homalogrypota*, of which *coccinea* is the type species, is based on a misidentified type species for which no other name exists.

***Cercopis marginata*.** A syntype of this species and *C. schach* Fabricius is in W. Hunter's (1718-1783) collection (HMAG), as was indicated in their original description (see Appendix 3). Both these were listed by Kerr (1910), the principal source used for the inclusion of Hunter material (HMAG) by Zimsen (1964). However, two different *C. marginata* were described by Fabricius (1787) in the same publication, one (the cercopid) from S. America and the other (an aphrophorid) from Europe. Gmelin (1789) gave each replacement names, *C. atra* and *C. hafniensis*, respectively. Presumably based on page priority, Metcalf (1962a) regarded the former as an un-necessary replacement name and retained *C. marginata* for it. For stability we follow this usage here as *hafniensis* does appear, albeit as a junior synonym, in the 'European' literature. Some further confusion has arisen regarding the identity of the cercopid, *C. marginata*. Although Signoret (1853) correctly identified it as a senior synonym of the cercopid *Sphenorhina rufivaria* Walker, this action was not followed by Stål (1870) and subsequent authors who identified it as a cicadellid (see Metcalf, 1961 and footnote*). The putative type of *C. marginata* (HMAG) matches the original description (see Appendix 3) and it is unclear why Stål (usually an accurate worker) placed it in the cicadellid genus *Gypona* Germar, together with several other Fabricius South American *Cercopis* species, that he correctly placed in *Gypona*. The most probable reason is that he never examined the specimen; there is no evidence that it was ever borrowed in the past by any hemipterist and was unplaced to genus by DeLong & Freytag (1964: 79) in their treatment of *Gypona*.

***Cercopis cruentata*.** This species was described from the private collection of D. Drury (1725-1803), whose collection was worked on by Fabricius. It appears that some of Drury's specimens were acquired by Hunter and also J. Banks (1743-1820)

* Metcalf (1961: 73) cited Signoret's (1853) synonymy of *Sphenorhina rufivaria* Walker with *Cercopis marginata* Fabricius in the following way: '[*Sphenorhina rufivaria*] Signoret 1853d: 183 (11) To [*Sphenorhina*] *marginata* Fabr. [error]'. The first use of square brackets here indicates that Signoret did not refer to the names directly but in reporting on the BMNH collection that he saw (the topic of his paper) he referred to the numbering system for each species as was used in Walker's (1851) catalogue of the same. Therefore Signoret's reference to the synonymy of these two species is as follows: 'Dans les *Sphenorhina*: N^{os} 2 et 3. C'est la même espèce, *marginata*, Fab.'. In Walker's (1851) catalogue (page 686) species number 2 is *Sphenorhina marginata* and number 3 is *S. rufivaria*.

(Armitage, 1958; Gaonkar, in prep.). Although no Fabricius South American cercopid species are present in the Banks Collection (BMNH) two specimens that match the description of *C. cruentata* Fabricius (= *Sphenorhina rubra* (Linnaeus)) are present in Hunter's collection (HMAG). In addition, a specimen identified as *C. cruentata* is also present in the A. Bosc (1759-1828) collection (MNHN). Bosc, who worked at the Paris museum, and collected for it in South America, was a very close friend of Fabricius and according to Zimsen (1964) the new species which Fabricius described during his stays in Paris were mainly from Bosc's collection. Some specimens are labelled 'Mus. D. Hunter', 'Mus. Dom. Lund', 'Mus. Dom. Bank' suggesting that the material came from these collections or that Bosc saw the species in these collections. A possible connection between Drury and Bosc is made by the presence of a unique specimen, identified by Bosc as '*E[desa] gigantea*' and labelled as 'Surinami Drury' (Hemiptera: Tessaratomidae) (pers. comm. Dominique Pluot-Sigwalt). Paradoxically, this specimen has recently been determined as *Plisthenes merianae* (Fabricius, 1775), a species with a non-Neotropical distribution. In addition to *C. cruentata*, a specimen of *C. pubescens* Fabricius, is also present in Bosc's collection; both specimens have characteristic Bosc black-bordered labels. However, there seems little to suggest that these Bosc collection specimens are types, particularly as in the case of *C. cruentata* its data label reads 'Cayenne' (French Guiana), which is at variance with the type locality of Surinam. Also, the fact that both are common South American species suggests that specimens of each may have found their way into more than one collection at that time. However, it is worth noting that six years after the description of *C. cruentata*, Fabricius (1781) synonymised it with *Sphenorhina rubra* (Linnaeus), but none the less the former name appears on the Bosc specimen.

Fennah types

Fennah described species while both working in the West Indies and in the BMNH. The dates for these periods are 1937-1958 and 1958-1987, respectively (Wilson, 1987). Registration numbers on some types e.g. in the genus *Aeneolamia*, indicate that Fennah donated material from his own collection to the BMNH during both periods, e.g. numbers 1950-517 and 1962-88, and via the Commonwealth Institute of Entomology e.g. number 1949-240. The location of several type series specimens (presumably not donated to the BMNH) is unknown.

Germar types

As noted by Horn *et al* (1990) Germar's Hemiptera collection is in BDZM. Of the nine South American cercopid species described by Germar, all in his 1821 paper, there are type specimens of *Cercopis furcata* and *C. sororia* deposited in ZMUH and

BDZM and a type specimen of *C. melanopectera* in ZMUH. The status of one specimen of each Germar species (except *furcata*), in NMW, is uncertain. These historical specimens from Signoret's collection bear transcribed data and Signoret determination labels, on new labels, the latter added by A. Handlirsch (1865-1935) (pers. comm. H. Zettel) and, except for *Maxantonia punctigera* (Germar) (see annotated check-list), also bear a hand-written label with Germar's species name followed by 'Germar', 'type', 'typ. coll.' or 'coll. typ.', and probably 'Brasil'. For the specimen identified as *Tomaspis colon* (Germar) this is labelled: '*colon*/Hoffmansegg/type coll. Brasil. This surname in Horn *et al* (1990: 175) is listed as Johann Centurius Graf von Hoffmansegg (1766-1849)), and is the author given by Germar (as 'Hffg.') for this new species and *M. punctigera*, presumably thinking, mistakenly, that Hoffmansegg was going to publish descriptions of these species. Another specimen from Signoret's collection has a label '*rubra* Linne/*cruentata* Fab/ typ Germ. Brasil'. This wording corresponds to the heading of the redescription of this species in Germar's (1821) paper (page 41) thus: '*C. rubra* Stoll. Tab. 2, fig. 10, *Cicada rubra* Linn. *Cercopis cruentata* Fab.'. It would seem that Germar's interpretation of *rubra* is not the current one which corresponds in size and colour to his *C. sororia*.

Jacobi types

The depository for Jacobi's types was not generally given in the original description, except for a few referred to as 'Mus. Berol.' (Museum Berlinensis = ZMB). However, most specimens that Jacobi studied belonged to O. Staudinger & A. Bang-Haas, a company in Dresden dealing with natural history collections, which had at their disposal a large collection of South American insects. Of the species that Jacobi described, some specimens were selected as type specimens and deposited in the MTD collection, labelled as co-types (syntypes). Some of the remaining specimens found their way to other natural history museums in Central Europe, including DEIE (see Gaedike, 1971) and ZMUH (see Weidner & Wagner, 1968), with those in the latter being subsequently destroyed during the war. Later, with the disbandment of the company in the 1950s, any remaining material was returned to MTD. Emmrich (1974) listed both sets of material acquired by MTD, with the latter material being regarded as supplementary. However, it is possible that at least some of the latter material was used in Jacobi's descriptions, a fact born out by the available material of *Tropidorhinella inflata* (Jacobi). For this species a very wide distribution is given in the original description, but in Dresden only 4 specimens out of over 50 bear type labels. Also, some specimens labelled as types do not match the original data for some species i.e. *Hemitomaspis caligata* (Jacobi), *Sphenorhina galbana* (Jacobi), *Zuata pica* (Jacobi), *Laccogrypta praelata* (Jacobi) and *Mahanarva raripila* (Jacobi). However, among the material subsequently obtained by MTD there

are specimens of Jacobi's new species that do bear the correct data. However, for the time being we have followed Emmrich's (1974) listing of supplementary material.

Many of the species described in Jacobi's 1908a publication were described from both Peru and Bolivia and it is therefore not surprising that for at least one species the type series is possibly mixed (see *Maxantonia catella* in annotated check-list). Further work is therefore needed on each type series to establish if the distribution given is real or if more than one species is present. For two species in Jacobi's (1908) work (*Mahanarva andigena* and *Sphenorhina parambae*), there are types in MTD bearing a label saying 'Kauf [bought] 1907'. Presumably either the Dresden dealer noted above, or MTD, bought these before the species descriptions appeared in 1908. These types bear data labels that match the originally recorded data (Ecuador, Paramba, 3500', Rosenberg) except without altitude in *andigena*. Coincidentally, specimens of these species (two and one specimens, respectively), with the recorded data (plus 'iv. 1897'), but with a different style of label to the MTD types, are in the BMNH. We conclude that these specimens are not types, as according to their BM registration number (99-104), they were bought from Rosenberg in 1899, well before their species publication date. In Jacobi (1908a) the type data 'Hab.: Peru: Callanga' appears beneath the text comprising the main description and description of vars a-c of *Tomaspis pica*, and a different locality, 'Bolivia: Curoico', beneath var. d. A similar style of listing applies to two other species (with varieties) in the same publication (*T. centurio* and *T. phalerata*). We assume, that in all these cases the type data applies to all taxa that come above the data or up until the next set of data. This interpretation is contrary to Metcalf's, 1961: 514 catalogue entry for Jacobi's description of *pica*, which gives Bolivia (only) for the nominate form.

In Jacobi's 1942 publication (omitted from Metcalf's (1961) catalogue) he unaccountably gives *Sphenorhina* in two different formats. It appears first as '*T. (Sphenorhina)*' for three of the species listed under *Tomaspis* (*trifasciata* Melichar, *pubescens* (Fabricius) and *discors* Jacobi) and secondly as a general heading for several other species.

Lallemand types

Lallemand described material mainly from his own collection but also from museum collections (Lallemand, various dates) and from the collection of C.B. Williams (referred to as 'M. Williams' and 'M. C. B. Williams') (Lallemand, 1924b) (see also 'Material and methods – Identifying types'). The 13 new species described from Williams's collection (collected either by Williams or J.B. Rorer) were either returned to Williams or retained. Either way, the material came to the BMNH either as part of Lallemand's collection in 1955 or Williams collection in 1929. A note at the rear of Lallemand's (1924b) paper states that Williams material would be shortly

handed over to the BMNH and an entry in the BMNH register for 1929-539 states: '18 Cercopidae (Homoptera) including 14 types named by Dr Lallemand [from] South and Central America. Presented by C.B. Williams xi.'29 coll. by donor'.

The terminology used by Lallemand for his type designation is very inconsistent. In particular, a very confusing situation arises as to whether his frequently used word 'Type' is singular or plural (holotype or syntype(s) respectively). For example, in his 1949 publication there is no evidence to suggest that 'Type' in 'Type: ma collection' is not singular, as the only other terminology used for type material is 'Type et paratypes: ma collection'. However, in some other publications the word 'Type' is also used in the plural, e.g. 'Type: collection de M. Williams et la mienne' (Lallemand, 1924b: 481) and 'Type: ma collection, 3 E' (Lallemand, 1938a: 137). The existence of some paratypes of species indicated as 'Type: my collection' strengthens the view that in these and other cases 'Type' could be plural. Where there is ambiguity in a publication we regard specimen(s) referred to as 'Type my collection' as syntype(s).

For three Lallemand taxa, there are specimens (here regarded as syntypes) in the BMNH (from Lallemand's collection) which bear labels reading 'Ex-Typus' (*Sphenorhina nigrotaenia*) and 'Ex-Typis' (*Kanaima fluvialis* and *K. fluvialis bipunctata*), which are of uncertain meaning. It is surprising that as these are special printed labels (red print and black border) they are known only from these few examples.

Linnaeus types

A single Neotropical cercopid, *Cicada rubra*, appeared in Linnaeus's Systema Naturae in 1758. The locality of the type series (specimen or specimens) was given as 'America' and its collector (or from whose collection it came, or both) was given as 'Rolander'. However, no specimens are present in Linnaeus's collection (LSL) and no reference is made to a Rolander collection in Horn *et. al.* (1990). A neotype should never be designated lightly but as *Sphenorhina rubra* is one of several similar species, the existence of a type specimen is desirable. Such externally similar species (e.g. tegmen dark with yellow bands, see Plate 1, B) are a very common in the Neotropics and such specimens are frequently found in 'old' collections e.g. four specimens matching the above description are present in what is thought to be Horsfield's collection (see footnote*). Such early collections, often with specimens lacking labels,

*T. Horsfield (1773-1859): The following note of L.Jessop 3.vi.1980 (in part) appears in the BMNH Historical Hemiptera collections cabinet. "Horsfield was an American, who worked in Java and later lived in England, working as the curator of the East India Company museum... Horsfield's own collection was sold by Stevens... and I expect they [the BMNH specimens] belong to that coll. - especially as some of these specimens are N. American [and Neotropical] and would be kept rather than given to the E.I.C."

have an uncertain history making it very difficult to know what are types (see also discussion under *C. cruentata* Fabricius ‘Fabricius types’). In this case with such a common species, described in 1758, there seems little doubt that the type series (even if extant) could not be recognised if not in Linnaeus’s collection.

Stål types

Stål referred to the type material of his new species being deposited in his own collection and ‘Mus. Holm.’ = Museum Holmae (both NRS) and in the ‘Mus. Sehestedt’ = the collection of O.R.G. Sehested and T. Lund (now ZMUC). With respect to Stål’s (1854) new cercopid species there is some inconsistency with respect to the recorded data and label information on the putative types in his collection (NRS). In his 1854 paper the new species are recorded from either ‘Brazil’, ‘Minas Geraes’ or both. However, under *Tomaspis fimbriolata* and *T. flavopicta* in Stål’s collection we find four specimens of each species, three labelled ‘Minas Geraes’ and one ‘Brazil’ which were originally recorded from Minas Geraes only and Brazil only respectively, and under *T. semilutea* there is a single specimen labelled ‘Minas Geraes’ which was originally recorded from ‘Minas Geraes Brazilae’. A similar problem of type recognition arises with Stål’s 1862a paper on Cercopidae from Rio de Janeiro. The single specimen present of *Monecphora nigratarsis* and *Sphenorhina cruralis*, and one of a pair of each of the remaining species (*S. acuta*, *M. faciatipennis*, *Tunaima lepida* and *T. pellucens*), are labelled Brazil ‘F. Sahlb.’ (= R.F. Sahlberg 1811-1874). The other specimen of each pair is labelled ‘Stål’ (absent in *pellucens*) and ‘Rio Jan’. For the purposes of this publication all these specimens in Stål’s collection are treated as syntypes.

Walker types

For nearly all of Walker’s 74 Neotropical species, an early specimen is present in the BMNH, bearing a green museum type disc. Contrary to Medler (1990: 128), who noted that these labels were not reliable in the Flatidae, we have found that, with one exception (see below), these labels are always on a plausible type. These specimens also bear a name label for the appropriate species, either printed and cut from the description heading from the original publication or hand-written. These specimens represent either the sole type specimen or one of a series of types, the remainder of which can only be recognised by the presence of data and registration number information matching the originally recorded data. Walker gave an indication of the number of types he examined from each type locality, by a system of letters a, b, c etc for different individuals followed by their data and source of material. Locality and registration number are usually present on Walker’s type specimens and are written, usually back-to-back, on the same circular label. In such cases the number refers to an

entry in the BMNH register, which among other things, gives the source of the type material referred to in Walker's descriptions. Due to the poor condition of many of these labels, caused by their small size and excessive re-pinning, we list their information and additional information from the corresponding entry in the register (see Appendix 1). For most type specimens their registration numbers indicate a date before the publication date, as these were specimens Walker described from the BMNH collection. However, for the types described from W.W. Saunders's collection, these came to the BMNH in 1868 and bear the registration number '68 4'.

For one specimen there seems some doubt that it is a type (see *Sphenorhina duodecimpunctata* Walker). With respect to Walker's (1851) publication an unusual situation arises following the original description of *Neosphenorhina ocellata* (Walker). After its description two specimens (syntypes) are listed from Venezuela. This is followed by a different description and two more listed specimens from Brazil and South America. However, no name appears as a heading to the second description, suggesting perhaps a printer's error. The identity of *ocellata* has been taken (here and by other authors) from the latter description although the distribution has been given as Venezuela, fitting the former description. Type specimens of the former, unlike the latter are unknown (see Appendix 1).

During Walker's lifetime, two major workers (Stål and Signoret) examined his types and other specimens in the BMNH and published reports on their visits (Signoret, 1853 and Stål, 1862b).

The line measurement used by Walker for the 'body' and 'of the wings' refers to the apex of head to the apex of abdomen and the wing-span respectively. The millimetre measurement is approximately twice the line measurement.

5. ANNOTATED CHECK-LIST OF NEW WORLD CERCOPIDAE

The following notes apply to the format adopted in the check-list.

Species group. When different from the current placement, the original genus or combination of species or subspecies appears in parentheses after the original reference. After which, for those taxa published prior to December 31, 1955, their reference in Metcalf's (1961) catalogue is given (except those few taxa missed by Metcalf, see 'Introduction') together with the genus under which they were included in Metcalf's catalogue, if different from the original. Some references are also given for nomenclatorial changes and those containing figures.

Subspecies and synonym listings. The number of infraspecies is particularly high in this group (see 'Introduction'). Many of these names are for colour morphs (infrasubspecies) and probably do not warrant subspecies status. However, as the names exist there seems little point in synonymising them, and such names are perhaps useful when referring to the morphs. Subspecies are therefore generally retained and listed alphabetically below the species. However, previously synonymized infraspecies are not generally reinstated as valid although similarly the names could be useful if they represent a colour morph. No separate nominate subspecies is listed as the type information etc. for this taxon is included under the general species heading. Synonyms are listed chronologically with the authority of the synonymy given indicated by 'syn.'

Specimens examined. Of the specimens examined (for most species) only details of the type specimens are given in the check-list. Details of other specimens examined (if figured) are given in the legends. See also 'Material and methods – Figures and figured specimens'.

Types not examined. Where types are deposited in more than one collection, the reference to types 'not examined' refers only to the material from the single, immediately preceding, depository. Data for these specimens are given in quotation marks, indicating information from the original reference, subsequent references (see 'Material and methods – Jacobi types') or personal communication.

Type depository unknown. Where the details of types and their depository are not known the term 'unknown' is used, followed by the originally recorded country of origin in quotation marks, e.g. 'Type(s) unknown, 'French Guiana''.

Types missing. Where types could not be found, the locality and depository, if given in the original description, is given in quotation marks, followed by ‘not found’ e.g. ‘Syntype(s), ‘Bolivia MNHM’ (not found)’. In the case of missing type specimens described by Distant and Walker, and those indicated by Lallemand as ‘ma collection’, all of which should be in BMNH, these are referred to as ‘missing’.

Figure numbers. The figure number(s) given for junior synonyms is in respect to the figured type and is repeated under the senior synonym.

Abbreviated terms (used throughout):

Stat. nov. = Status new i.e. a new change of rank of a genus-group or species-group name

Syn. nov. = New synonym. Note: where two species are considered synonyms for the first time (based on their male genitalia), but are none the less sufficiently distinct in colour pattern to warrant subspecies status (see above), the junior name is referred to as a stat. nov. (see *Homalogrypota interrupta hyalinipennis* Schmidt).

Syn. rev. = Synonymy revived.

Comb. nov. = New combination of genus and species group name, followed in parenthesis by the previous generic placement (only if different from the original placement). Note: new combinations do not include specific-group names brought out of synonymy or species relegated to subspecies (both stat. nov.) if no change of genus occurs (see *Choconta elliptica* Walker).

Comb. reval. = Combination revalidated i.e. a reinstatement of a combination to an earlier usage.

Symbols (used throughout):

*: preceding the species name, indicates that the species is known only from the female sex or from a specimen of unknown sex (due to a specimen missing its entire abdomen or its terminalia).

†: preceding the species name, indicates a species for which specimens of neither sex are known.

?: following the word ‘sex’ in the listed type material, indicates that the sex of the specimen(s) cannot be ascertained, due to the absence of the entire abdomen or its terminalia, or where indicated, the type material has not been examined.

CERCOPIDAE
ISCHNORHININAE

Ischnorhininae Schmidt, 1920

Tomaspidinae Schmidt, *sensu* Fennah, 1968: 170 (key to tribes); *sensu* Carvalho, 1987: 208 (key to tribes).

Ischnorhinini Schmidt, 1920: 66; Fennah, 1968: 170 (key to genera); Carvalho, 1993: 165 (key to genera).

Tomaspidini Schmidt, 1922a: 175; Fennah, 1968: 172 (key to genera).

Funkhouserini Lallemant, 1938a: 146.

Hyboscartini Lallemant, 1949: 102; Fennah, 1968: 187 (key to genera).

Monecphorina Lallemant, 1949: 163 (as subtribe of Cercopini).

Neaeninae Metcalf, 1939: 247 (as a subfamily of Aphrophoridae); Fennah, 1968: 188 (key to genera, as a tribe of Tomaspidinae).

Aeneolamia Fennah

Aeneolamia Fennah, 1949a: 608; Metcalf, 1961: 133; Fennah, 1968: 178. Type species: *Monecphora semifascia* Walker, by original designation.

albofasciata (Lallemant, 1939a: 59) (*Monecphora*); Metcalf, 1961: 224; Fennah, 1968: 179; Clark *et al*, 1976: 21, fig. 6. Syntypes: 1♀ (BMNH), 1 sex? (HNHM), Mexico. **Figs 232, 368, 486.** [The identity of the male genitalia of this species is based on the association of males, in the BMNH, to the female syntype (referred to as the paratype by Fennah, 1968: 179). The syntype in HNHM was referred to as the holotype by Clark *et al*, 1976: 21.]

occidentalis Fennah, 1953b: 352 (*A. postica occidentalis*); Metcalf, 1961: 140; Clark *et al*, 1976: 21 (syn.). Holotype ♂, paratypes 6♂, 4♀, Mexico (BMNH). **Figs 232a-c, e, 368.**

colon (Germar, 1821: 42) (*Cercopis*); Metcalf, 1961: 90 (*Tomaspis*). Type(s), ‘Brazil’ (unknown). **Figs. 224, 508, 694. Comb. nov.** The identity of this species is taken from historical specimens (identified as *colon*) from Signoret’s and Stål’s collection (see ‘Material and methods – Germar types’) and two female syntypes of *A. selecta* (see below) that agree fairly well the original description of *colon* (see Appendix 3). These specimens have the originally described transverse band and two distal spots on the tegmen. The remaining syntype of *selecta* (male), the female syntype of *A. transversa* and some other specimens examined lack the spots. In the few male specimens examined of both colour forms the genitalia show a slight difference (compare Fig. 224c, specimen with spots and Fig. 224e, specimen without spots). However, the fact that individ-

uals of both colour forms can occur together (two specimens examined from Brazil, Pernambuco), indicates that *A. transversa* should be placed in synonymy or be considered a valid species. The former position is adopted here.

selecta (Walker, 1858b: 184) (*Sphenorhina*); Metcalf, 1961: 141. Syntypes 1♂, 2♀, Brazil (BMNH). **Syn. nov. Fig. 694.** [Of the three syntypes, all with the same data (see Appendix 1), the male has only a transverse band and not the additional tegminal spots noted in the original description and for this reason could be considered to be non-syntypic, although three specimens ('a-c') were noted in the original description. See remarks under *A. colon*.

transversa Lallemand, 1938a: 142 (*Monecphora*); Metcalf, 1961: 229; Fennah, 1968: 179 (*A. selecta transversa*). Syntype ♀, Brazil (BMNH). **Syn. nov. Fig. 508.** [See remarks under *A. colon*.]

contigua (Walker, 1851: 670) (*Triecphora*); Metcalf, 1961: 139 (*A. postica contigua*); Fennah, 1968: 178; Clark *et al*, 1976: 21, fig. 7. Holotype ♂, 'Honduras' (BMNH). **Figs 233-237, 467, 713.** [The genital capsule of the type of *contigua* (with one remaining subgenital plate detached) is similar to Fig. 229d and the aedeagus as in 230a, with processes at midlength of the shaft. As currently interpreted, this species includes specimens with both yellow to red markings and short to long apical processes of the paramere (see Figs 233-237), differences (together with locality) that are to some extent reflected in the several subspecies. However, further studies are needed to determine the reliability of these features. A colour habitus and line figure were given by Lallemand (1912, plate 5, figs 2, 2a, as *A. postica*). Clark *et al*, 1976: 21(in footnote) noted Fennah's (1968: 178) change (due to priority) from *postica* to *contigua* and extended this change to all subspecies.]

pictipennis Stål, 1864: 63 (*Tomaspis*); Fowler, 1897: 184 (syn. of *A. postica*); Metcalf, 1961: 137. Syntypes: 6♂, 6♀, 'Vera Cruz' (NMW). **Fig. 467.** [The type depository was originally given as 'Mus. Holm. et Coll. Signoret'.]

ssp. campecheana Fennah, 1951: 138, fig. 1B (*A. postica campecheana*); Metcalf, 1961: 139; Clark *et al*, 1976: 21. Syntypes: 1♂ (without head), 3♀, 1 sex?, Mexico (BMNH). **Fig. 387.**

ssp. jugata (Fowler, 1897: 183, plate 11, figs 14, 14a) (*Tomaspis jugata*); Metcalf, 1961: 140. Holotype ♀, Guatemala (NMW). **Fig. 789.**

ssp. postica (Walker, 1858b: 177) (*Monecphora postica*); Metcalf, 1961: 137-139, 140; Fennah, 1968: 178; Clark *et al*, 1976: 21. Holotype ♀, Mexico (BMNH). **Figs 237, 660.** [Contrary to Fennah (1953b) the locality of the type is recorded (on type label, see Appendix 1: '56 143'). Also, his reference to the 'allotype' is a male non-type specimen (Fig. 237e) referred to in the same fashion (in error) by both China, on the specimen (det. 1934), and by China &

Myers (1934, figs 1g, 1, 2d).] The males figured here match the female type by locality (Mexico), size and orange markings (as figured by Fowler, 1897, plate 11, fig. 18). All have a short apical process of the paramere.]

ssp. sanctaerosae Fennah, 1953b: 351 (*A. postica santaerosae* (sic)); Metcalf, 1961: 140; Clark *et al*, 1976: 21. Holotype ♂, paratypes 3♂, 1♀, Mexico (BMNH). **Figs 234, 372.** [Fennah, 1968: 179 (in foot-note) indicated that the spelling *santaerosae* that headed the original description was a typographical error and the textual spelling (*sanctaerosae*) was the correct one.]

ssp. turrialbae Fennah, 1953b: 352 (*A. postica turrialbae*); Metcalf, 1961: 140. Holotype ♂, paratypes 22 (♂ and ♀), Costa Rica (BMNH). **Figs 235, 370.**

flavilatera (Urich, 1914: 43) (*Tomaspis*); Metcalf, 1961: 134-135, 136. Holotype ♂, paratypes 1♂, 1♀, Guiana (BMNH). **Figs 230, 770.** [The holotype genitalia were figured by China & Myers (1934, figs 1f, 2g, i, 7b), Fennah (1949b: 707) figured a topotypical specimen (Fig. H) and Guagliumi (1956) figured the Venezuelan subspecies and their distribution.]

ssp. belenensis Guagliumi, 1956: 66, fig. 2B. Holotype ♂, paratypes 8♂, 4♀, 'Venezuela' ('MEFAM'), not examined.

ssp. caripensis Fennah, 1949b: 707; Metcalf, 1961: 135-136. Syntypes: 3♂, 2♀, Venezuela (BMNH). **Fig. 365.**

ssp. funebris Fennah, 1949b: 708; Metcalf, 1961: 136. Syntypes: 4♂, 3♀, Venezuela (BMNH). **Fig. 366.**

ssp. guarici Guagliumi, 1956: 61, fig. 1B. Holotype ♂, paratypes 12♂, 14♀, 'Venezuela' ('MEFAM'), not examined.

ssp. mesae Fennah, 1949b: 708; Metcalf, 1961: 136. Syntypes: 6♂, 2♀, Venezuela (BMNH). **Fig. 367.**

ssp. talmana Fennah, 1949b: 709; Metcalf, 1961: 136. Syntypes: 2♀, 1 sex?, Venezuela (BMNH). **Fig. 364.**

lepidior (Fowler, 1897: 185) (*Tomaspis*); Metcalf, 1961: 136-137. Syntypes: 5♂, 1♀, Panama (BMNH and 1♂ NMW). **Figs 231, 798.**

reducta (Lallemand, 1924b: 481) (*Monecphora*); Metcalf, 1961: 140-141. Syntypes 2♀, Panama (BMNH). **Plate 16, Figs A-C; Fig. 507.** [Described from material collected from Panama by C.B. Williams and H.I. Deitz. The Williams material was listed as male but the syntype (labelled Williams collection) is female. A male non-type from Panama has virtually identical genitalia to the figured type of *A. reducta montana*.]

ssp. montana Fennah, 1949b: 705, fig. 3A, B; Metcalf, 1961: 141. Syntypes 4♂, 4♀, Venezuela (BMNH). **Fig. 369.**

***sanguinipaga** (Lallemand, 1938a: 143) (*Sphenorhina*); Metcalf, 1961: 206. Syntype sex?, Venezuela (BMNH). **Comb. nov. Fig. 537.**

- varia** (Fabricius, 1787: 274) (*Cercopis*); Metcalf, 1961: 142-144, 166. Syntype ♂, no data, 'Cajenae [French Guiana] Dom. v. Rohr' (ZMUC). **Plate 14, Figs A-B; Figs 226-229, 428.** [The presumed syntype (bearing this name) is without both abdomen and data labels. However, its(?) genitalia were figured previously (Fennah, 1949b: 706, figs 4A-I and Costes, 1971: 93, figs 155-159). The type specimen may be from Trinidad rather than the originally recorded French Guiana as its colour pattern is similar to *A. varia saccharina* (form *distanti*) from Trinidad (Fennah, 1949b: 710 and 1953b: 353), i.e. with a broad claval band, not found in mainland specimens. From its figured genitalia (see above) the type of *A. varia* it is also similar to Trinidad specimens examined in having the subgenital plates with an acute apical projection, although Fennah (1949b: 710), under *A. varia*, also mentioned specimens of an '*Aeneolamia* population of N.W. District, British Guiana' (not found in BMNH) with similar subgenital plates. The Trinidadian specimen figured here (syntype of *Tomaspis saccharina* var. *tricolor*) also differs from the only mainland subspecies genitalia examined (*A. sontica*) in the shape of aedeagus (in anterior/posterior view) and paramere. Fennah (1949b) and Guagliumi (1955) figured the variation and distribution of many of the subspecies below, but further work is needed to establish if they are all valid subspecies. See original description in Appendix 3.]
- ssp. bodkini** (Williams, 1921: viii, plate I, fig. b) (*Tomaspis bodkini*); Metcalf, 1961: 144-145. Guyana. **Fig. 779.** [Williams only figured this species and did not designate types. It was first described by Pickles (1932: 14) from 9♂ and 2 ♀, from Guyana, of which 2♂ are in the BMNH and a male of which was figured by China & Myers (1934, figs 1d, k, 2a).]
- ssp. bogotensis** (Distant, 1913: 563) (*Tomaspis bogotensis*); Metcalf, 1961: 145. Syntypes: 1♂, 4♀, 1 sex?, Colombia (BMNH). **Figs 226, 600.** [Based on its male genitalia this is possibly a subspecies of *A. lepidior*.]
- ssp. campestris** Fennah, 1949b: 712; Metcalf, 1961: 145-146. Syntypes 3♂, 2♀, Venezuela (BMNH). **Fig. 371.**
- ssp. carmodyi** (Kershaw, 1913: 143) (*Tomaspis carmodyi*); Metcalf, 1961: 146. Syntypes 1♂, 1♀, Tobago (BMNH). **Fig. 762.** [The type genitalia were figured by China & Myers (1934, figs 1c, 2e, h).]
- ssp. costata** Fennah, 1949b: 721, figs 5B, D; Metcalf, 1961: 146-147. Syntypes 8♂, 15♀, Venezuela (BMNH). **Figs 373, 374.** [The pale costa is present or absent in the type series (see figures), as noted in original description.]
- ssp. deltica** Guagliumi, 1955: 183; Metcalf, 1961: 147. Holotype ♂, paratypes 35♂, 13♀, 'Venezuela' ('MEFAM'), not examined.

- ssp. demissa** (Walker, 1851: 684) (*Monecphora demissa*); Metcalf, 1961: 147. Holotype ♂, Venezuela (BMNH). **Fig. 650.** [The type genitalia were figured by China & Myers (1934, figs 1a, h, 2f).]
- ssp. deusta** Fennah, 1951: 142; Metcalf, 1961: 148. Syntypes, 10♂, 18♀, Venezuela (5♀, 1 sex? BMNH, remainder not found). **Fig. 375.**
- ssp. falconiana** Guagliumi, 1955: 165; Metcalf, 1961: 148. Holotype ♂, paratypes 74♂, 50♀, 'Venezuela' ('MEFAM'), not examined.
- ssp. fallax** Fennah, 1949b: 715, fig. 5D-F; Metcalf, 1961: 148. Syntypes 2♂, 3♀, Venezuela (BMNH). **Fig. 376.**
- ssp. lugens** Fennah, 1951: 141, fig. 2B; Metcalf, 1961: 148-149. Syntypes 40 (♂ and ♀), Venezuela (BMNH). **Figs 229, 377.**
- ssp. nigrescens** Fennah, 1949b: 720, fig. 5D; Metcalf, 1961: 149. Syntypes 12♂, 11♀, Venezuela (BMNH). **Figs 378, 379.**
- ssp. pallidior** Fennah, 1949b: 713, fig. 5E; Metcalf, 1961: 149. Syntypes 10♂, 4♀, 2 sex?, Venezuela (BMNH). **Fig. 380.**
- ssp. paspali** Fennah, 1949b: 716; Metcalf, 1961: 149-150. Syntypes 10♂, 4♀, 2 sex?, Venezuela (BMNH). **Fig. 381.**
- ssp. propinqua** (Walker, 1851: 671) (*Triecphora propinqua*); Metcalf, 1961: 150-151. Holotype ♂, Venezuela (BMNH). **Fig. 714.** [The type genitalia were figured by China & Myers (1934, figs 1e, j , 2b).]
- ssp. saccharina** (Distant, 1909: 196) (*Tomaspis saccharina*); Metcalf, 1961: 151-163. Syntypes 5♂, 10♀, Trinidad, Antilles, St. Vincent?, Grenada (BMNH). **Figs 227, 555, 556, 620.** [The type genitalia (as 'holotype') were figured by China & Myers, 1934: 453, fig. 1b, 1i, 2c. The types are referable to Williams's (1921) plate 1, figs 3-4. Distant's varieties 'a' and 'b' were later named by Lallemand (1912) (see below). The question-marked St. Vincent record refers to the mention of this locality by Williams (1921: 53) from material in the BMNH, which on examination (if the same material) has both Grenada and St. Vincent labels. The new status of *saccharina* as a subspecies of *varia* proposed by Fennah (1949: 724) was omitted from Metcalf (1961). See also comments under *A. varia*.]
- saccharina* var. *distanti* Lallemand, 1912: 97 (*Tomaspis*); Metcalf, 1961: 152. Syntypes 1♂, 3♀, West Indies (BMNH). **Fig. 555.** [Named for Distant's (1909: 196) *saccharina* var. 'a' of which one syntype bears Distant's data label with this name. Referable to Williams's (1921) plate 1, figure 1. Distant did not specify any different localities for his two varieties of *A. saccharina* but Metcalf (1961: 152) listed only Antilles for *A. distanti*, which was one of the localities given for the varieties under the general heading of '*saccharina*' by Distant (see under *A. saccharina* above). See also comments under *A. varia*.]

saccharina var. *tricolor* Lallemand, 1912: 97 (*Tomaspis*); Metcalf, 1961: 152.

Syntypes 5♂, West Indies (BMNH). **Figs 227, 556.** [Named for Distant's (1909: 197) *saccharina* var. 'b' of which one syntype bears Distant's data label with this name. Referable to Williams's (1921) plate 1, figure 2. See also comments under *A. varia*.]

ssp. sanctaebabarbarae Guagliumi, 1955: 151; Metcalf, 1961: 163. Holotype ♂ paratypes 149♂, 82♀, 'Venezuela' ('MEFAM'), not examined.

ssp. semifascia Walker, 1851: 679 (*Monecphora semifascia*); Fennah 1949b: 714, Figs 5E; Metcalf, 1961: 163-164. Holotype ♀, Venezuela (BMNH). **Fig. 663.**

ssp. sontica Fennah, 1949b: 716, Figs 5A, B, D; Metcalf, 1961: 164-165. Syntypes 184♂, 244♀, Venezuela (BMNH). **Figs 228, 382.**

ssp. sordida Fennah, 1949b: 721; Metcalf, 1961: 165. Syntypes 1♂, 1♀, Venezuela (BMNH). **Fig. 383.**

ssp. tomentosa Fennah, 1949b: 710, Figs 5C; Metcalf, 1961: 165. Syntypes 5♂, 3♀, Venezuela (BMNH). **Fig. 384.**

ssp. turenensis Guagliumi, 1955: 166; Metcalf, 1961: 165-166. Holotype ♂, paratypes 152♂, 91♀, 'Venezuela' ('MEFAM'), not examined

Aracamunia Fennah

Aracamunia Fennah, 1968: 180. Type species: *Tomaspis dimorpha* Distant, by original designation.

dimorpha (Distant, 1909: 203) (*Tomaspis*); Metcalf, 1961: 167 (*Delassor*). Syntypes 1♂, 1♀, Bolivia (BMNH). **Figs 253, 606.**

Baetkia Schmidt

Baetkia Schmidt, 1920: 67, 73, 75; Metcalf, 1961: 66; Carvalho, 1993: 167. Type species: *Cercopis compressa* Le Peletier & Serville, by original designation.

compressa (Le Peletier & Serville, 1825: 606) (*Cercopis*); Metcalf, 1961: 66; Carvalho, 1993, figs 7-11. Type(s) unknown, 'French Guiana'. **Figs 56, 776.** [Identified from specimens standing under this name in the BMNH that agree fairly well with the original description (see Appendix 3). We show a slight difference in the configuration of the aedeagal spines from that depicted by Carvalho (1993).]

***maroniensis** Lallemand, 1938a: 137; Metcalf, 1961: 67. Syntypes 3♀, French Guiana (BMNH). **Fig. 472.**

†stolli (Lallemand, 1912: 92) (*Tomaspis* (*T.*) *compressa* var. *stolii* (sic)); Metcalf, 1961: 67. Type(s) unknown, 'Surinam'. [Named for Distant's (1909: 205) *T. compressa* var. c, based on Stoll's (1780) plate XXI, figure 112. Lallemand (1949: 155, in key) separated this species from his *maroniensis* based on

tegmenal colour difference but based on Stoll's figure (on which *stolli* is based) there seems little difference between the species.]

Bradypteroscarta Lallemand

Bradypteroscarta Lallemand, 1949: 30; Metcalf, 1961: 115. Type species: *B. infuscata* Lallemand, by original designation.

infuscata Lallemand, 1949: 31; Metcalf, 1961: 115. Syntype ♂, Ecuador (BMNH).
Figs 28, 473.

Carachata Carvalho & Sakakibara

Carachata Carvalho & Sakakibara, 1989: 111. Type species: *C. dimorphica* Carvalho & Sakakibara, by original designation.

dimorphica Carvalho & Sakakibara, 1989: 112, figs 1-10. Holotype ♂, Brazil (DZUP).
Figs 1i-k, 68, 749.

Carpentiera Lallemand

Carpentiera Lallemand, 1954: 3. Type species: *C. insignis* Lallemand, by original designation.

***insignis** Lallemand, 1954: 4. Holotype sex?, paratype sex?, Bolivia and Peru (BMNH). **Fig. 474.**

insignifica Metcalf, 1960: 227, unnecessary new name for *Monecphora insignis* Lallemand, 1954 *nec M. insignis* Walker 1858.

Catrimania Fennah

Catrimania Fennah, 1968: 176. Type species: *Sphenorhina semivitrea* Walker, by original designation.

***insignis** (Walker, 1858b: 178) (*Monecphora*); Metcalf, 1961: 506 (*Hyboscarta*); Fennah, 1968: 177. Syntypes 2♀, Brazil (BMNH). **Fig. 656.** [Distinguished from *C. longula* in having the middle transverse dark band of the tegmen in one syntype (figured) distinctly narrowing towards the costal margin and in the other syntype by having a sub-basal costal brown spot.]

longula (Lallemand, 1938a: 143) (*Monecphora*); Metcalf, 1961: 228 (*Monecphora*); Fennah, 1968: 177. Syntype ♀, Peru (BMNH). **Figs 86, 502.**

semivitrea (Walker, 1858b: 184) (*Sphenorhina*); Metcalf, 1961: 507 (*Hyboscarta*). Holotype ♂, Brazil (lacks head and prothorax) (BMNH). **Comb. nov. Figs 85, 646.**

Chinana Lallemand

Chinana Lallemand, 1927a: 114; Metcalf, 1961: 517. Type species: *C. argentina* Lallemand, by original designation.

argentina Lallemand, 1927a: 114; Metcalf, 1961: 517. Syntypes 2♂, Argentina (BMNH). **Figs 29, 475.**

Choconta Fennah

Choconta Fennah, 1979: 271. Type species: *Sphenorhina elliptica* Walker, by original designation. *Neolaccogrypota* Lallemand, sensu Nast, 1975: 94.

[Paradoxically, although Fennah (1979) designated *C. elliptica* as the type species, he also listed this species as a junior synonym of *C. circulata*. The genus was revised by Nast (1975) (as *Neolaccogrypota*) with figures of most species.]

circulata (Guérin-Méneville, 1844: 368) (*Cercopis*); Metcalf, 1961: 89-90 (*Tomaspis*); Fennah, 1979: 271. Type(s) unknown, 'Colombia'. **Figs 190, 772.** [The identity of the male genitalia of this species is based on the interpretation of Colombian material (NMW) by Nast (1975: 96, figs 6-10). The male figured by Nast is presumably the specimen from Neu Granada referred to in error as a female thus: '1 ♀, 2♀♀'. The two specimen in the BMNH (female) have red and yellow pattern respectively. The material identified by Nast (1975: 97, figs 12-15) as *Neolaccogrypota brunnea* Lallemand is probably a dark form of *circulata*.]

***comitata** (Melichar, 1915: 9) (*Tomaspis*); Metcalf, 1961: 90 (*Tomaspis*). Syntypes 2♀, Bolivia (MM); 2♀ 'Bolivia' (MM) not examined. **Comb. nov. Fig. 410.**

elliptica (Walker, 1851: 687) (*Sphenorhina*); Signoret, 1853 (syn. of *Cercopis circulata*); Metcalf, 1961: 89; Nast, 1975, figs 1-5 (species reinstated); Fennah, 1979. Syntype ♀, Venezuela (BMNH). **Figs 189, 680.** [Only one of the two originally listed syntypes is present in the BMNH. Nast's (1975) figures were presumably from the male he listed from Venezuela.]

juno (Distant, 1909: 191) (*Ischnorhina*); Metcalf, 1961: 70-71 (*Laccogrypota*); Fennah (1979: 271). Syntype ♂, Peru (BMNH). **Figs 84, 527, 581, 812.**

lemoulti Lallemand, 1924a: 491 (*Sphenorhina*); Metcalf, 1961: 194. Syntype ♂, Peru (BMNH). **Syn. nov. Fig. 527.**

destituta Nast, 1975: 97, figs 16-19 (*Neolaccogrypota*). Holotype ♂, paratypes 1♂, 1♀, Peru (MIZW). **Syn. nov. Fig. 812.**

***peruana** (Lallemand, 1924a: 490) (*Sphenorhina*); Metcalf, 1961: 199; Fennah, 1979: 271. Syntypes 2♀, Peru (BMNH). **Figs 533, 729.**

jaczewskii Nast, 1975: 96, fig. 11 (*Neolaccogrypota*). Holotype ♀, Peru (MIZW). **Syn. nov. Fig. 729.**

Deois Fennah

Deois Fennah, 1949a: 607, 620; Metcalf, 1961: 174; Fennah, 1968: 178. Type species *Cercopis terrea* Germar, by original designation.

[The three subgenera considered by Fennah (1953b), *D. (Deois)*, *D. (Orodamniss)* and *D. (Pandysia)*, were originally distinguished on external characters and the two further subgenera described by Sakakibara (1979), *D. (Acanthodeois)* and *D. (Fennahia)*, were distinguished also on male genitalic characters. It would appear that the type of the type species of *Deois* (*Cercopis terrea* Germar) was not examined by Fennah (1949a) or any subsequent author (see remarks under *terrea*) and from the description its identity could just as easily be that of *Pandysia transiens* (Walker). Both Sakakibara (1979) and Costa & Sakakibara (2002) revised the genus, the latter raising the subgenus *Orodamniss* Fennah to generic level.]

Deois (Acanthodeois) Sakakibara, 1979: 11. Type species: *Monecphora incompleta* Walker, by original designation.

flavopicta (Stål, 1854: 250) (*Monecphora*); Metcalf, 1961: 95 (*Tomaspis*); Sakakibara, 1979: 23, figs 36-40. Syntypes 3♂, 2♀, Brazil (NRS). **Figs 107, 455, 615.** [The habitus figure given by Sakakibara (1979) matches the types. There is variability in the apical processes and lateral spines of the aedeagus, with the latter variable on either side of the same individual, as shown in the figure here.]

multicolor (Distant, 1909: 198) (*Tomaspis*); Metcalf, 1961: 176-177 (*Deois (Orodamniss)*); Sakakibara, 1979: 23 (syn.). Syntype ♂, Brazil (BMNH). **Fig. 615.**

incompleta (Walker, 1851: 684) (*Monecphora*); Metcalf, 1961: 174-175 (*Deois (D.)*); Sakakibara, 1979: 22, figs 31-35. Holotype ♀, Brazil (BMNH). **Figs 106, 653, 706.** [The habitus figure given by Sakakibara (1979) matches the type.]

diluta Walker, 1858a: 92 (*Sphenorhina*); Distant, 1909: 188 (syn.); Metcalf, 1961: 174. Syntype sex?, Brazil (BMNH). **Fig. 706.**

Deois (Deois) Fennah

correntina (Berg, 1879: 215 (234)) (*Tomaspis*); Metcalf, 1961: 91; Carvalho & Sakakibara, 1988: 60, figs 1-6. Holotype ♂, Argentina (UNLP). **Figs 97, 305.**

grandis Sakakibara, 1979: 14, figs 11-14. Holotype ♂, paratypes 3♂, Brazil (DZUP).

knighti Carvalho & Webb, 2004: 388-389, figs 11, 18. Holotype ♂ (DZUP), paratypes 1♂, 12♀, Brazil (BMNH, MCT, DZUP). **Figs 98, 623.**

knoblauchii (Berg, 1879: 218 (236)) (*Tomaspis*); Metcalf, 1961: 178 (*D. Pandysia*); Sakakibara, 1979: 26, figs 46-50. Syntypes 3♂, Argentina (UNLP). **Figs 101, 307.** [The habitus figure given by Sakakibara (1979) matches the type. There is variation in the shape of the subgenital plate (compare Fig. 72d with Sakakibara (1979, fig. 50).]

morialis (China & Myers, 1934: 456) (*Tomaspis*); Metcalf, 1961: 175 (*Deois D.*); Costa & Sakakibara, 2002, fig. 16 (habitus). Holotype ♂, paratypes 2♂, 2♀, Brazil (BMNH). **Figs 103, 752.**

mourei Cavichioli & Sakakibara, 1993: 747; Sakakibara, 1979: 13, figs 6-10 (including habitus), as *D. picklesi* China & Myers. Holotype ♂, paratypes, several ♂♀, Brazil (DZUP). **Figs 100, 782.**

pirapora Sakakibara, 1979: 18, figs 20-25. Holotype ♂, paratypes 25♂, 12♀, (DZUP), 1♀ (BMNH), Brazil. **Fig. 766.**

pseudoflavopicta (Lallemand, 1938a: 140) (*Monecphora*); Metcalf, 1961: 229; Costa and Sakakibara, 2002, fig. 22 (type habitus). Syntype ♀, Brazil (BMNH). **Figs 105, 506.**

similis Sakakibara, 1979: 20, figs 26-30; Costa & Sakakibara, 2002: 197 (syn.). Holotype ♂, paratypes 2♂, 2♀, Brazil (DZUP).

rubropicta Sakakibara, 1979: 16, figs 15-19. Holotype ♂, paratypes 2♀, Brazil (DZUP). **Figs 102, 767.** [Identified from the original description and a specimen from Brazil, standing under this name in the BMNH.]

sexpunctata Carvalho & Webb, 2004: 389, figs 12, 13, 17. Holotype ♂ (DZUP); paratypes, 15♂, 17♀ (BMNH, DZUP, MCTP), Brazil. **Figs 104, 624.**

spinulata Costa & Sakakibara, 2002: 198-199, figs 1-3, 17. Holotype ♂ (DZUP); paratypes 1♂ (DZUP), 1♂ (BMNH), Brazil. **Fig. 634.**

terrea (Germar, 1821: 46) (*Cercopis*); Metcalf, 1961: 175-176 (*Deois* (*D.*)); Sakakibara, 1979: 12, figs 1-5 (including habitus). Type(s), unknown, 'Brazil'. **Figs 99, 312, 759.** [The identity of this species is based on the BMNH material studied by Fennah (1953) and the material identified and figured by China and Myers (1934, figs 3a, 4d, 5a, 7c) and Sakakibara (1979, figs 1-5), all of which agree fairly well with the original description (see Appendix 3). There is an historical specimen of *terrea* (without data) in the BMNH from Distant's collection. Its labels indicate that it was from Berg's collection 'Ex Coll./ Bergiana' and had been compared to a type 'C[?]m typo/ comparat.'. The specimen bears a handwritten determination label with '*Tomaspis argentina* Berg B.O.' followed in Distant's (?) hand with ' = *terrea* Germ.'. See also under 'Material and methods - Germar Types'.]

perezii Berg, 1879: 217 (235) (*Tomaspis*); Berg, 1883: 239 (syn.); Metcalf, 1961: 106; Sakakibara, 1979: 11 (syn.). Syntypes 2♀, Argentina (UNLP). **Fig. 312.**

argentina Berg, 1879: 217 (236) (*Tomaspis*); Berg, 1883: 239 (syn.); Metcalf, 1961: 175. Types (♂, ♀), unknown, 'Argentina'. [See comments under *D. terea*.]

***uniformis** (Distant, 1909: 212) (*Mahanarva*); Metcalf, 1961: 505; Fennah, 1968: 178. Syntypes 4♀, Ecuador (BMNH). **Fig. 586.**

***Deois* (Fennahia)** Sakakibara, 1979: 11. Type species: *Monecphora flexuosa* Walker, by original designation.

coerulea (Lallemand, 1924a: 383) (*Monecphora*); Metcalf, 1961: 225 (*Monecphora*); Cavichioli & Sakakibara, 1993: 750, fig. 2. Syntypes 2♂, 3♀, Brazil (BMNH). **Figs 108, 492.** [This species and *D. (F.) flexuosa* (Walker) are tentatively retained as separate species based on colour pattern, there being no discernible difference in the male genitalia, which show similar variation in the apex of the aedeagus in both species. There is also variation in the tegminal markings in *flexuosa*, with the most common type being as figured by Sakakibara (1979, fig. 56). Although markings are generally absent in *coerulea* one specimen examined (BMNH) has a very small red mark subapically on the costal margin of the tegmen.]

flexuosa (Walker, 1851: 677) (*Monecphora*); Metcalf, 1961: 95 (*Tomaspis*); Sakakibara, 1979: 27, figs 56-60 (including habitus); Cavichioli & Sakakibara, 1993, fig. 3 (holotype habitus). Holotype ♀, Brazil (BMNH). **Plate 12, Fig. A; Figs 1e, f, 651, 668, 669.** [In addition to the above figures, a coloured habitus and line figure were given by Lallemand (1912, plate 4, figs 9, 9a). See comments under *D. (F.) coerulea*.]

viridescens Walker, 1851: 679 (*Monecphora*); Signoret, 1853: 182 (syn.); Metcalf, 1961: 95. Holotype ♂, Brazil (BMNH). **Fig. 669.**

vacillans Walker, 1858a: 86 (*Monecphora*); Distant, 1909: 204 (syn.); Metcalf, 1961: 95. Syntype ♂, Brazil (BMNH). **Fig. 668.**

Deois (Pandysia) Fennah, 1953b: 356; Metcalf, 1961: 178. Type species: *Cercopis schach* Fabricius, by original designation.

bergi Costa & Sakakibara, 2002: 199-201, figs 4-6, 19. Holotype ♂ (DZUP); paratypes 2♂ (DZUP), 1♂ (BMNH), Brazil.

constricta Carvalho & Webb, 2004: 389, figs 14-16. Holotype ♂, Brazil (DZUP), paratypes 1♂, 3♀ (BMNH, DZUP). **Figs 111, 625.**

crenualata Costa & Sakakibara, 2002: 201, 203, figs 7-9, 18. Holotype ♂ (DZUP); paratypes 28♂, 3♀ (DZUP), 1♂, 1♀ (BMNH), Brazil.

schach (Fabricius, 1787: 274) (*Cercopis*); Metcalf, 1961: 178-179; Sakakibara, 1979: 24, figs 41-45. Syntype ♂ (HMAG), no data, 'America septentrionali [error] Mus. Dr. Hunter'; Sakakibara, 1979, fig. 41. **Figs 109, 425.** [The habitus figure given by Sakakibara (1979) matches the type except the red tegminal band is slightly more irregular in the type. The original locality of North America is probably an error as all examined specimens are from Brazil. See 'Material and methods – Fabricius types' and original description in Appendix 3.]

humeralis Le Peletier & Serville, 1825: 606 (*Cercopis*); Fennah, 1953: 356 (syn.); Metcalf, 1961: 178. Type(s) unknown, 'Brazil'. [See original description in Appendix 3.]

ssp. solita (Walker, 1851: 682) (*Monecphora solita*); Metcalf, 1961: 179. Syntypes 4♂, 4♀, Brazil (BMNH). **Fig. 665**. [Five syntypes bear a number label but no data label. However, as one of them also bears a museum type label and name label, usually associated with Walker's types, all are regarded as syntypes. Also, there are three other syntypes, labelled from the type locality Brazil, bringing the total number of syntypes to eight, which matches the original number listed (see also Appendix 1).]

transiens (Walker, 1851: 696) (*Sphenorhina*); Metcalf, 1961: 177 (*D. Orodamnisi*); Costa & Sakakibara, 2002: 203 (syn. with *D. (P.) schach*). Holotype ♂, Brazil (BMNH). **Status revalidated. Figs 110, 699**. [This species shows slight differences in the aedeagus with the type having the length of the apical area above the processes and the position of the gonopore intermediate between the two figured specimens. The genital capsule is similar to Fig. 109d but the subgenital plate is more tapered in the Canhotinho specimen. The figured historical specimen of this species from Signoret's collection (NMW), is labelled as *Deois terrea* (See 'Material and methods - German types').]

Deoisella Costa & Sakakibara

Deoisella Costa & Sakakibara, 2002: 205-206. Type species: *D. fasciata* Costa & Sakakibara, by original designation.

fasciata Costa & Sakakibara, 2002: 206, figs 10-12, 20. Holotype ♂, paratypes 8♂, 7♀, Brazil (DZUP), not examined, paratypes 1♂, 1♀ (BMNH). **Fig. 637**. [A variation in the aedeagus is figured by Carvalho & Webb (2004).]

picklei (China & Myers, 1934: 459, figs 3e, 4b, 5d, 7f) (*Tomaspis*); Metcalf, 1961: 177 (*Deois (Orodamnisi)*); Carvalho & Sakakibara, 1993, fig.1 (holotype habitus); Costa & Sakakibara, 2002: 206, fig. 21 (habitus). Holotype ♂, paratypes 1♂, 7♀, Brazil (BMNH). **Figs 96, 754**. [The material identified by Sakakibara (1979: 13, figs 6-10) as this species is referable to *Deois (D.) mourei*.]

Ferorhinella Carvalho & Webb

Ferorhinella Carvalho & Webb, 2004: 383-384. Type species: *Sphenorhina brevis* Walker, by original designation.

brevis (Walker, 1851: 692) (*Sphenorhina*); Metcalf, 1961: 88 (*Tomaspis*); Carvalho & Webb, 2004: 384, figs 1, 34-37. Holotype ♂, Brazil (BMNH). **Figs 200, 676**.

Hemiplagiophleboptena Lallemand

Hemiplagiophleboptena Lallemand, 1949: 111; Metcalf, 1961: 516. Type species: *H. multicolor* Lallemand, by original designation.

***multicolor** Lallemand, 1949: 111; Metcalf, 1961: 516. Syntype ♀, Bolivia (BMNH).
Fig. 476.

Hemitomaspis Lallemand

Hemitomaspis Lallemand, 1949: 31; Metcalf, 1961: 116. Type species: *Tomaspis* (*Triecphora*) *caligata* Jacobi, by original designation.

caligata (Jacobi, 1908: 207) (*Tomaspis* (*Triecphora*)); Metcalf, 1961: 116. Syntypes 1♂, Bolivia (MTD); 3♂, 2♀, 'Peru' (MTD), not examined; 1 sex? 'Bolivia' (DEIE), not examined. **Figs 4, 280, 327.** [See 'Material and methods - Jacobi types'.]

ssp. jacobii (Lallemand, 1912: 91) (*Tomaspis* (*Triecphora*) *caligata* var. *jacobii*); Metcalf, 1961: 116. Syntype(s), Peru? and Bolivia? (MTD?), not examined. [Named for Jacobi's (1908: 207) *T. caligata* var. In the original description the type locality was not distinguished from Jacobi's nominate variety (See 'Material & Methods' - 'Lallemand types').]

ignobilis (Fowler, 1897: 181) (*Tomaspis*); Metcalf, 1961: 98 (*Tomaspisinella*). Syntypes 2♂, Panama (BMNH). **Comb. nov. Figs 8, 792.**

minuscula (Jacobi, 1908: 208) (*Tomaspis* (*Triecphora*)); Metcalf, 1961: 116. Syntype ♂, Peru (MTD). **Figs 5, 281, 340.**

Homalogrypota Schmidt

Homalogrypota Schmidt, 1920: 68, 87; Metcalf, 1961: 73; Carvalho, 1993: 174. Type species: *Cercopis coccinea* Fabricius, 1794, by original designation.

***cinnabarina** Schmidt, 1920: 89; 73; Metcalf, 1961: 73. Syntypes 2♀, Peru (MIZW).
Fig. 436.

coccinea (Fabricius, 1794: 46) (*Cercopis*); Metcalf, 1961: 73-75; Carvalho, 1993, figs 32-37. Syntype ♀, no data, 'Americae meridionalis Insulis' (ZMUC). **Figs 32, 421.** [Due to uncertainties about the identity of the Fabrician type (see 'Material & methods - Fabricius types'), and to preserve stability of the genus name, based on *coccinea*, the interpretation of this species is taken from Lallemand (1912) and subsequent authors that matches specimens in the BMNH (here figured). Carvalho's (1993) aedeagal figures show a slight difference in shape of the processes to those given here. See original description in Appendix 3 and also remarks under *Sphenoclypeana haematina* (Germar).]

interrupta Schmidt, 1920: 89; Metcalf, 1961: 75. Syntypes 3♂, Bolivia (MIZW). **Figs 33, 450.** [The types in MIZW have been previously wrongly labelled as *Homalogrypota intermedia* Schmidt.]

ssp. hyalinipennis Schmidt, 1920: 89 (*Homalogrypota hyalinipennis*); Metcalf, 1961: 75. Holotype ♀, Peru (MIZW). **Stat. nov. Fig. 440.** [This species was distinguished from *I. interrupta* by its smaller size and more reddish colour,

both ventrally and on the scutellum. As the genitalia of a male, with these characteristics (BMNH), are identical to *interrupta*, the two species are regarded as subspecies of the same species.]

Huaina Fennah

Huaina Fennah, 1979: 270. Type species: *Cercopis inca* Guérin-Ménéville, by original designation.

inca (Guérin-Ménéville, 1844: 368) (*Cercopis*); Metcalf, 1961: 99 (*Tomaspis*). Type(s) unknown, 'Mexico'. **Plate 15, Figs A-C; Figs 188, 773.** [Identified from material from Mexico and Costa Rica, standing under this name in BMNH.]

Hyalotomaspis Lallemand

Hyalotomaspis Lallemand, 1949: 30; Metcalf, 1961: 117. Type species: *Tomaspis clarissa* Jacobi, by original designation.

clarissa (Jacobi, 1921: 41) (*Tomaspis*); Metcalf, 1961: 117. Syntypes 3♂, Mexico (MTD), 1♂ examined. **Figs 187, 330.**

Hyboscarta Jacobi

Hyboscarta Jacobi, 1908: 208; Metcalf, 1961: 505-506. Type species: *Hyboscarta rubrica* Jacobi, by original designation.

***andina** Schmidt, 1918: 204; Metcalf, 1961: 506. Syntype ♀, Ecuador (MIZW). **Fig. 429.** [Named for the female syntype(s) of *Tapaiuna pehlkei* (Schmidt).]

melichari Lallemand, 1924a: 492; Metcalf, 1961: 506. Syntypes 1♂, (MM), 4♀ (BMNH), Brazil; syntypes 'MNHM', (not found). **Figs 31, 478.**

rubrica Jacobi, 1908: 208; Metcalf, 1961: 506-507. Syntype ♂, Bolivia (MTD). **Figs 1g, 30, 353.** [A coloured habitus and line figure of a syntype was given by Lallemand, 1912, plate 5 figs 9, 12, the latter figure modified here, Fig. 1g.]

***teres** Jacobi, 1908: 208; Metcalf, 1961: 507. Syntype ♀, Bolivia (MTD). **Figs 282, 356.**

Iphirhina Fennah

Iphirhina Fennah, 1968: 175. Type species: *Sphenorhina quota* Distant, by original designation.

discontinua (Fowler, 1897: 179) (*Tomaspis*); Metcalf, 1961: 92; Fennah, 1968: 176. Syntypes, 2♂, 2♀, (BMNH), 1♀ (NMW), Mexico. **Figs 73, 786.**

limbata (Stål, 1864: 65) (*Tomaspis*); Metcalf, 1961: 102; Fennah, 1968: 176. Syntypes 2♀ (NRS), 1♂ (NMW), Mexico. **Figs 72, 360, 457, 790.** [Described from 'Oaxaca. (Mus. Holm. et Coll. Signoret.)'. The two female syntypes are labelled, Mexico, 'Oaxaca' 'Sallé'. An additional two possible syntypes are in NMW (see under *I. limbata* Fowler). The following synonymies are retained

but the variation in size of the individuals examined and shape of the aedeagus is unusually great for the same species.]

limbata Fallou, 1890: 351 (*Monecphora*); Jacobi, 1921: 40 (syn.); Metcalf, 1961: 102. Syntype ♂, Mexico (MNHN). **Fig. 360**. [The aedeagus of the type is as in the type of *I. limbata* (Stål) but the specimen is much larger and has broader red borders to the tegmen and pronotum. As this was described as a new species it becomes a secondary homonym.]

limbata Fowler 1897: 179 (*Tomaspis*); Lallemand, 1912: 94 (syn.); Metcalf, 1961: 102. Syntypes 1♀, Guatemala (BMNH), 1♂, 2♀, Mexico (NMW). **Fig. 790**. [Fowler described this species from Mexico (Signoret collection, NMV and BMNH) and Guatemala (Champion collection, BMNH) and a specimen of the latter origin was figured. In his original remarks to this species, Fowler noted the label '*limbata* det. Signoret' on one of the two NMW syntypes but incorrectly thought this was a manuscript name of Signoret and used the same name for his new species. Apparently, he overlooked another specimen (of the same species) in NMW labelled '*limbata* det. Stål' which, if seen, might have alerted him to the fact that his species had already been described by Stål. It's conceivable that the two NMV syntypes of *I. limbata* Fowler, the aforementioned labelled by Signoret, and one much larger (as noted by Fowler), are also possible syntypes of Stål's *I. limbata*).

perfecta (Walker, 1858a: 90) (*Sphenorhina*); Metcalf, 1961: 106 (*Tomaspis*); Fennah, 1968: 176. Syntype ♀, locality unknown (BMNH). **Figs 71, 710**.

quota (Distant, 1900: 693) (*Tomaspis*); Metcalf, 1961: 109; Fennah, 1968: 175, figs 2A-E. Syntype ♂, Costa Rica (BMNH). **Plate 9, Figs A, B; Figs 70, 619**.

sepulchralis (Stål, 1864: 65) (*Tomaspis*); Metcalf, 1961: 111-112. Syntype ♂, Mexico (NMW). **Comb. nov. Figs 69, 468**.

Ischnorhina Stål

Ischnorhina Stål, 1869: 14; Carvalho, 1993: 172; Metcalf, 1961: 75-76. Type species: *Cercopis ephippium* Fabricius, 1803, by subsequent designation - Lallemand, 1949: 161.

ephippium (Fabricius, 1803: 91) (*Cercopis*); Metcalf, 1961: 76. Syntypes 1♀, 1♂, no data, 'America meridionali. Dom. Smidt. Mus. Dom. Lund' (ZMUC). **Figs 1a-c, 37, 422**. [The presumed female type (Fig. 422) bearing this name is without data. The female has a brown patch adjacent the clavus apex as in the original description (see Appendix 3) and in BMNH specimens so named. The status of another specimen (ZMUC) figured by Costes (1971) as *ephippium*, is uncertain. It is also without data, has the subapical aedeagal processes matching both *surinamensis* (lateral fig. 36a) and *ephippium* (anterior

fig. 37b) and unusually the apical margin of the tegmen brown. This suggests that if this male is *ephippium* then the aedeagal differences shown may be unreliable to separate the two species (see also variation noted under *surinamensis*). Also, the dark tegminal spot varies in size in the BMNH specimens suggesting that *surinamensis* (without spot and with the similar genitalia) may be just a variety. See original description in Appendix 3.]

quadrimeasma Costes & Webb, 2004: 391, figs 1, 5-7. Holotype ♂, Bolivia (NMNH).

Figs 34, 639.

surinamensis Schmidt, 1920: 91; Metcalf, 1961: 78; Carvalho, 1993, figs 21-26. Syntypes 1♂, 1♀, Surinam (MIZW). **Figs 36, 449.** [Compared to the figured specimen, the aedeagus of the male type is broader in lateral view with the processes more convergent in anterior view. Carvalho's (1993) aedeagal figures show a slight difference in shape of the processes to those given here (see also comments under *I. ephippium*).]

unifascia (Walker, 1851: 690) (*Sphenorhina*); Metcalf, 1961: 78. Holotype ♀, locality unknown (BMNH). **Figs 35, 433, 700.** [The aedeagus in the figured specimen of *I. unifascia* is narrower than in the type of its synonym, *I. bipars* (see Nast's 1949, figs 1-5.)]

bipars Schmidt, 1920: 92; Nast, 1949: 477 (syn.); Metcalf, 1961: 78. Syntypes 1♂, 2♀, Brazil (MIZW). [The male type was figured by Nast (1949).] **Fig. 433.**

***williamsi** Lallemand, 1924b: 478; 78; Metcalf, 1961: 78. Syntype ♀, Ecuador (BMNH). **Fig. 480.**

Isozulia Fennah

Isozulia Fennah, 1953a: 51; Metcalf, 1961: 185; Fennah, 1968: 184; Fennah, 1985: 246. Type species: *I. flamen* Fennah, by original designation. [Descriptions and figures of most species were given by Fennah, 1985.]

aenea (Melichar, 1915: 14) (*Mahanarva*); Metcalf, 1961: 504. Syntype ♂, Paraguay (MM). **Comb. nov. Fig. 408.** [The genitalia of the type is similar to *I. saluta* (Fig. 238).]

astralis (Distant, 1909: 199) (*Tomaspis*); Metcalf, 1961: 133-134 (*Aeneolamia*); Fennah, 1985: 250. Syntype ♀, Bolivia (BMNH). **Figs 239, 599.**

ssp. flamen Fennah, 1953a: 51, figs A-G (*I. flamen*); Metcalf, 1961: 185; Fennah, 1985: 251, figs 22-26, 28 (*I. astralis* ssp. *flamen*). Holotype ♀, (NMNH), paratype ♂ (BMNH), Bolivia. **Figs 240, 388.** [We note here slight differences in the male genitalia (parameres) between the two subspecies (see Figs 239-240).]

christenseni (Lallemand, 1940: 187) (*Manecphora* [sic]); Metcalf, 1961: 224; Fennah, 1985: 251, figs 35-43. **Fig. 491.** Syntypes 2♂, Argentina (BMNH). [This species shows only slight differences to *I. astralis* (see Fennah, 1985).]

- ssp. jujuyana** Fennah, 1985: 252, figs 36-39, 41-43. Holotype ♂, paratypes 3♂, 3♀, Argentina (BMNH). **Fig. 391.**
- cyanescens** (Lallemand, 1931: 167) (*Sphenorhina*); Metcalf, 1961: 190; Fennah, 1968: 184. Holotype ♂, paratype ♀ (ZMUH), paratype ♀ (BMNH), Colombia. **Fig. 520.** [See remarks under *I. minor*. The BMNH paratype was figured by Fennah (1985).]
- minor** Fennah, 1985: 249, figs 4, 8-14. Holotype ♂, paratypes 3♂, 1♀, Ecuador (BMNH). **Figs 241, 392.** [Although this species matches *I. cyanescens* in colour and in its male genitalia, it is tentatively retained as a separate species based on its smaller size.]
- soluta** (Melichar, 1915: 14) (*Mahanarva*); Metcalf, 1961: 505. Syntypes 1♂, Bolivia (MM); 2♀ 'Bolivia' (MM), not examined. **Comb. nov. Figs 238, 419.**
- ssp. trivittata** (Jacobi, 1942: 115) (*Tomaspis trivittata*). Syntype ♂, Peru (MTD). **Stat. nov. Comb. nov. Figs 238, 359, 389, 390.** [Omitted from Metcalf's (1961) catalogue. The variation in colour pattern in the specimens examined (Peru) match those of *charaxus*, but do not quite match the type of *I. soluta* from Bolivia (compare habitus figures).]
- charaxus* Fennah, 1985: 249, figs 7, 15-21, 27. Holotype ♂, paratypes 4♂, 7♀, Peru (BMNH). **Figs 238, 389, 390. Syn. nov.**

Kanaima Distant

- Kanaima** Distant, 1909: 212; Fennah, 1968: 181; Metcalf, 1961: 525. Type species: *Tomaspis katzensteinii* Berg, by original designation. [A very variable genus with species differing in overall shape, colour pattern and shape of the frontoclypeus, the latter ranging from very broadly rounded in *K. katzensteinii* to more narrowly rounded in *K. vittata*. Two species, *K. fluvialis* and *K. katzensteinii*, occur on the same species of *Eryngium*, together with three species of *Balacha* (Cicadellidae: Cicadellinae). On another species of *Eryngium*, *K. dubia* occurs together with two other species of *Balacha* (Stancik & Cavichioli, 2003).]
- dubia** Stancik & Cavichioli, 2003: 9, figs 1-13. Holotype ♂, paratypes 12♂, 14♀ (DZUP), paratypes 2♂, 2♀ (BMNH), Brazil. **Fig. 769.**
- fluvialis** (Lallemand, 1924a: 380) (*Monecphora*); Metcalf, 1961: 226; Fennah, 1968: 181; Cavichioli, 1987, figs 1-18. Syntypes 1♂, 1♀, 1 sex?, Argentina (BMNH); syntype(s), 'Argentina MNHN' (not found). **Figs 252, 495.** [The aedeagus of the nominate subspecies and of the only male *bipunctata* examined is as in figure 252a-b. A slight difference is seen in the aedeagus of the single male examined of *lateralis* (Figs 251) and of an undescribed variety (Fig. 252e) the

latter with the tegmen red with dark apex. See also 'Material and methods – Lallemand's types'.]

ssp. bipunctata (Lallemand, 1924a: 381) (*Monecphora*); Metcalf, 1961: 226. Syntypes 1♂ (BMNH), 1♀ (MNHN), Argentina. [See 'Material and methods – Lallemand's types'.]

ssp. lateralis (Lallemand, 1924a: 380) (*Monecphora*); Metcalf, 1961: 226. Syntype ♂, Brazil (BMNH). **Figs 251, 497.**

fortunata (Lallemand, 1924a: 383) (*Monecphora*); Metcalf, 1961: 226. Syntypes 2♂, 1♀, Brazil (BMNH); syntypes, 'Brazil MNHN' (not found). **Status revalidated, comb. nov. Figs 244, 498.** [Synonymized with *K. vittata* Walker, by Fennah, 1979:270.]

katzensteinii (Berg, 1879: 214) (*Tomaspis*); Metcalf, 1961: 525-526. Syntypes 1♂, 1♀, Argentina. (UNLP). **Figs 242, 308, 309.**

***radiata** (Walker, 1851: 677) (*Monecphora*); Metcalf, 1961: 109 (*Tomaspis*); Fennah, 1968: 181. Holotype sex?, Venezuela (BMNH). **Fig. 661.**

vittata (Walker, 1851: 681) (*Monecphora*); Metcalf, 1961: 115 (*Tomaspis*); Fennah, 1979: 270. Holotype ♀, South America (BMNH). **Figs 243, 670.** [BMNH specimens from Brazil are recorded on *Digitaria decumbens*, *Hyparrhenia rufens* and *Paspalum* sp..]

Korobona Distant

Korobona Distant, 1909: 209; Metcalf, 1961: 123-124. Type species: *K. lineata* Distant, by original designation.

Horvathiella Lallemand, 1939a: 60; Metcalf, 1961: 124. Type species: *Horvathiella rubrovittata* Lallemand, by original designation.

Horvathiana Metcalf, 1952: 228; Metcalf, 1961: 124. [Unnecessary replacement name for *Horvathiella* Lallemand.]

lineata Distant, 1909: 209; Metcalf, 1961: 124; Nast, 1951b, figs 11a-e. Holotype ♂, Brazil(?), (BMNH). **Figs 1d, 218, 477, 582, 583.** [A coloured habitus and line figure of the holotype were given by Lallemand (1912, Plate 5, figs 6-6a).]

conspicua Distant, 1909: 210; Lallemand, 1949: 27 (syn.); Metcalf, 1961: 194 (*Sphenorhina*). Syntype ♀, Brazil (BMNH). **Fig. 582.**

rubrovittata Lallemand, 1939a: 60 (*Horvathiella*); Lallemand, 1949: 27 (syn.); Metcalf, 1961: 124. Syntypes 2♀, Brazil (BMNH); 1♀ (HNHM), not examined. **Fig. 477.**

Laccogrypota Schmidt

Laccogrypota Schmidt, 1920: 67, 75, 85; Metcalf, 1961: 67-68; Carvalho, 1993:168. Type species: *Sphenorhina grandis* Distant, 1878, by original designation.

***amazonensis** Lallemand, 1924b: 478; Metcalf, 1961: 68. Syntype ♀, Brazil (MNHN).

Fig. 483.

***atrocoerulea** Schmidt, 1920: 83; Metcalf, 1961: 68. Holotype ♀, Peru (MIZW).

Fig. 430.

***basirufa** Schmidt, 1920: 83; Metcalf, 1961: 68. Holotype ♀, Peru (MIZW). **Fig. 431.**

bogotana (Distant, 1878: 179) (*Sphenorhina*); Metcalf, 1961: 68. Syntypes 1♂, 1♀, Colombia (BMNH). **Figs 45, 338, 591.** [There is a difference in width of the red tegminal band in the two type series (see figs)].

invalida Jacobi, 1908: 204 (*Ischnorhina*); Metcalf, 1961: 68. Syntypes 1♂ (MTD), 1♀ ZMB, Colombia. **Syn. nov. Fig. 338.** [Another female in ZMB, labelled as a type, does not have the full type data.]

consul (Jacobi, 1908: 203) (*Ischnorhina*); Metcalf, 1961: 68-69. Syntypes (nominate) 1♂, 1♀, 'Peru' (MTD), types not examined. **Figs 46, 814.** [Several specimens have been examined, from Peru and Brazil (BMNH, NCSU, MIZW), which show all intermediates in colour between the pale nominate subspecies and the dark (*jacobii*) subspecies (see below). All have similar male genitalia. Although there is slight variation in the number and position of the aedeagal spines, on either side of the same aedeagus and between specimens, this variation in the latter is not correlated with colour pattern differences.]

ssp. indistincta (Lallemand 1912: 89) (*Ischnorhina*); Metcalf, 1961: 69. Syntypes 1♂, 1♀, Peru (MTD). **Fig. 482.** [Named for Jacobi's (1908: 203) *I. consul* var. a type specimens.]

ssp. jacobii (Lallemand 1912: 89) (*Ischnorhina*); Metcalf, 1961: 69. Syntype ♀, Peru (MTD). **Fig. 481.** [Named for Jacobi's (1908: 203) *I. consul* var. b.]

***costalis** Schmidt, 1920: 82; Metcalf, 1961: 69. Holotype ♀, Ecuador (MIZW). **Fig. 439.**

***dentata** Nast, 1949: 477; Metcalf, 1961: 69. Holotype ♀, Brazil (NMW). **Fig. 716.**

***gloriosa** (Jacobi, 1908: 209) (*Tomaspis* (*Sphenorhina*)); Metcalf, 1961: 98 (*Tomaspis*). Syntype ♀, Bolivia (MTD). **Comb. nov. Figs 303, 337.** [Tentatively included in *Laccogrypota* based on its similar external appearance with compressed and angled postclypeus but lacks the oblique ridge on the postclypeus and the tegmen are less elongate.]

grandis (Distant, 1878: 179) (*Sphenorhina*); Metcalf, 1961: 69. Syntype ♀, Colombia (BMNH). **Figs 48, 316, 594.**

laqueus Breddin, 1904: 58 (*Tomaspis*); Distant, 1909: 192 (syn.); Metcalf, 1961: 69. Syntypes 1♂ (BMNH), 1♀ (DEIE), Ecuador. **Fig. 316.** [See 'Material and methods - Identifying types'.]

inca Schmidt, 1920: 82; Metcalf, 1961: 70. Holotype ♀, Ecuador (MIZW). **Figs 52, 357, 441.**

- partita* Jacobi, 1921: 40 (*Ischnorhina*); Nast, 1951a:197 (syn.); Metcalf, 1961: 70. Syntype ♂, ♀, Ecuador (MTD and MIZW respectively). **Fig. 357.**
- praelata** (Jacobi, 1908: 203) (*Ischnorhina*); Metcalf, 1961: 71; Carvalho, 1993, figs 12-16. Syntypes 1♂, 1♀, Peru (MTD), 1♀, Peru (ZMB). **Figs 50, 283, 348.** [A coloured habitus figure of a syntype was also given by Lallemand (1912, plate 4, fig. 6). Compared to the syntype examined, the aedeagus figured by Carvalho (1993) is more tapered apically and the sculpture more extensive.]
- praetor** (Jacobi, 1908: 203) (*Ischnorhina*); Metcalf, 1961: 71. Syntype ♂, Bolivia, (MTD). **Figs 49, 349.** [See 'Biology – Natural enemies'.]
- pulchra** Schmidt, 1920: 81; Metcalf, 1961: 71. Syntypes 1♂, 1♀, Bolivia (MIZW). **Figs 51, 444.**
- quadrilineata** Costes & Webb, 2004: 391, figs 2, 8-10. Holotype ♂ (NMNH), paratypes 1♂, 1♀ (NCSU) paratype ♂ (BMNH), Bolivia. **Fig. 640.**
- trimaculata** Schmidt, 1922a: 175; Metcalf, 1961: 71. Holotype ♂, 'Brazil' (MZUSP), type not examined. **Fig. 451.**
- valida** (Distant, 1909: 191) (*Ischnorhina*); Metcalf, 1961: 71. Syntype ♀, French Guiana (BMNH). **Figs 53, 580.**
- volxemi** Lallemand, 1949: 159; Metcalf, 1961: 72. Holotype ♂, Brazil (IRSNB). **Fig. 484.** [Aedeagus laterally as in *L. praetor* (Fig. 49a) and anteriorly as in *L. valida* (Fig. 53b).]
- xanthomela** (Walker, 1858b: 180) (*Sphenorhina*); Metcalf, 1961: 72. Holotype ♀, Brazil (BMNH). **Figs 47, 702.**

Lujana Lallemand

- Lujana** Lallemand, 1954: 2. Type species: *Lujana multicolor* Lallemand, by original designation.
- multicolor** Lallemand, 1954: 2. Holotype ♂, Brazil (BMNH). **Fig. 485.** [The genitalia are missing in the type and only specimen.]

Mahanarva Distant

- Mahanarva** Distant, 1909: 210, 212; Metcalf, 1961: 504; Fennah, 1968: 185; 1979: 270. Type species: *M. indicata* Distant, by original designation.
- Luederwaldtia* Schmidt, 1922b: 262; Metcalf, 1961: 539; Fennah, 1968: 185 (syn.). Type species: *L. rubripennis* Schmidt, by original designation.
- Funkhouseria* Lallemand, 1938a: 146; Metcalf, 1961: 132; Fennah, 1968: 185 (syn.). Type species: *Sphenorhina quadripunctata* Walker, 1858a: 88, by original designation.
- Delassor* Fennah, 1949a: 611; Metcalf, 1961: 166; Fennah, 1968: 185 (syn.). Type species: *Cercopis tristis* Fabricius, by original designation.

[The type species of *Mahanarva* is known only from the female syntype and its external appearance is somewhat dissimilar from other species (see habitus figures). This raises the possibility that all other species may belong to a different genus (see also comments by Fennah, 1968: 185). Two other species (*phantastica* and *cruzminor*) also differ in form from other species and are therefore only tentatively included. However, the former adopts a similar position when feeding to some other *Mahanarva* species (see 'Biology – Feeding'). One species (*rubripennis*) has features in common with both subgenera; the postclypeus is angular in profile as in the nominate subgenus but the tegmen is more elongate as in *M. (Ipiranga)*. Both subgenera and *Aracamunia* have similar male genitalia. See also 'Material and methods – Figures and figured specimens'.]

Mahanarva (Ipiranga) Fennah 1968: 186. Type species: *Monecphora rubicunda* Walker, by original designation. [See comments under *Mahanarva*.]

aguirrei (Berg, 1879: 216 (235)) (*Tomaspis*); Metcalf, 1961: 85; Fennah, 1968:187. Syntypes 2♂, 1 sex?, Argentina (UNLP). **Figs 249, 304.**

bahiaensis Carvalho & Webb, 2004: 384, figs 2, 38, 39. Holotype ♂, Brazil (BMNH). **Figs 246, 626.**

indentata (Walker, 1858a: 86) (*Monecphora*); Fennah, 1953b: 350 (*Delassor rubicundus indentata*); Metcalf, 1961: 168-169. Syntype ♀, Brazil (BMNH). **Stat. nov. Fig. 654.** [Differs from *I. integra*, with similar male genitalia, in having the transverse bands on the tegmen narrower and more widely spaced.]

integra (Walker, 1858a: 86) (*Monecphora*); Fennah, 1953b: 350 (*Delassor rubicundus integer (sic)*); Metcalf, 1961: 169. Syntype ♀, Uruguay (BMNH). **Stat. nov. Figs 245, 503, 657.**

moreirae Lallemand, 1924a: 381 (*Monecphora*); Metcalf, 1961: 228 (*Monecphora*); Fennah, 1968: 187 (*M. (Ipiranga)*). Syntypes 2♂, 1♀, 1 sex? Brazil (BMNH, MNHN 1); syntype(s) sex? 'MNRJ', (not found). **Syn. nov. Fig. 503.**

rubicunda (Walker, 1851: 678) (*Monecphora*); Metcalf, 1961: 168 (*Delassor*); Fennah, 1968:187, figs 6A-C. Syntypes 1♂, 1♀, Brazil (BMNH). **Figs 247, 662.** [A coloured habitus and line figure were given by Lallemand, 1912, plate 5, figs 4, 4a.]

Mahanarva (Mahanarva).

[Excepting the type species, and other species where indicated, all species placements in the subgenus were by Fennah, 1968: 185-186.]

albifascia (Walker, 1858b: 184) (*Sphenorhina*); Metcalf, 1961: 187. Holotype ♂, Brazil (BMNH). **Comb. nov. Figs 248, 703.**

andigena (Jacobi, 1908: 215) (*Tomaspis (Sphenorhina)*); Metcalf, 1961: 166 (*Delassor*). Syntypes 1♂, Ecuador (MTD); 1♂ 'Ecuador' (MTD), not

- examined. **Plate 9, Figs C, D; Plate 10, Figs A-C; Figs 277, 286, 323.** [The syntype examined has the paramere apex intermediate between the two figured here. Two specimens (BMNH) are probably from the same series from which the types were selected (see 'Material and methods - Jacobi types').]
- bicolor** (Signoret, 1862: 585, plate 15, fig. 7) (*Monecphora*); Metcalf, 1961: 87 (*Tomaspis*). Type(s) unknown, 'Peru'. **Comb. nov. Figs 260, 329.** [Identified from specimens from Ecuador and Peru, standing under this name in the BMNH.]
- centurio* Jacobi, 1908: 204 (*Tomaspis* (*Monecphora*)); Metcalf, 1961: 89 (*Tomaspis*). Syntypes 1♂, Peru (MTD); 4♂, 4♀, 'Peru' (MTD), not examined; 1 sex? 'Peru' (DEIE), not examined. **Syn. nov. Fig. 329.**
- bipars** (Walker, 1858a: 91) (*Sphenorhina*); Metcalf, 1961: 88 (*Tomaspis*). Syntype ♂, South America (BMNH). **Figs 259, 673.** [Although the type locality is unknown other specimens examined (BMNH) are from Colombia.]
- bobischi** (Jacobi, 1908: 205) (*Tomaspis* (*Monecphora*)); Metcalf, 1961: 88 (*Tomaspis*). Syntype ♂, Colombia (MTD), 1♂, 1♀ (ZMB). **Comb. nov. Figs 257, 325.**
- chilensis** (Distant, 1909: 201) (*Tomaspis*); Metcalf, 1961: 166 (*Delassor*). Holotype ♂, Chile (BMNH). **Figs 258, 603.**
- combusta** (Distant, 1909: 200) (*Tomaspis*); Metcalf, 1961: 90 (*Tomaspis*). Syntype ♂, Bolivia (BMNH). **Figs 264, 604.**
- consita** (Melichar, 1915:12) (*Triecphora*); Metcalf, 1961: 225 (*Monecphora*). Syntype ♂, Paraguay (MM). **Figs 262, 411.**
- costaricensis** (Distant, 1879: 61) (*Sphenorhina*); Metcalf, 1961: 91 (*Tomaspis*); Fennah, 1979: 270; Thompson 1997, fig. 2b. Syntype ♀, Costa Rica (BMNH). **Plates 6, 7, Figs A-D; Plate 8, Figs A-C; Figs 261, 806, 807.** [In the nominate form the tegmen is variable in length and the spots (which are always discrete) are variable in size. In the form *semimaculata* the spots are bigger with the basal spots coalescing to various degrees].
- semimaculata* Fowler, 1897: 176, Table 11, fig. 3, 3a (*Tomaspis*); Metcalf, 1961: 111; Thompson, 1997: 907 (syn.). Syntype ♀, Costa Rica (BMNH). **Fig. 807.**
- quatuordecimnotata* Fowler, 1897: 177, Table 11, fig. 5, 5a (*Tomaspis*); Metcalf, 1961: 92; Thompson, 1997, fig. 2d (syn.). Syntype ♀, Nicaragua (BMNH). **Fig. 806.** [The type is similar to the type of *costaricensis* but the tegmen is shorter with the spots yellow rather than red].
- cruxminor** (Fowler, 1896: 106) (*Tomaspis* (*Sphenorhina*)); Metcalf, 1961: 92 (*Tomaspis*). Syntype ♀, 'New Granada' (NMW). **Comb. nov. Figs 255, 315, 805.**
- illuminatula* Breddin, 1904: 58 (*Tomaspis*); Metcalf, 1961: 192 (*Sphenorhina*). Syntype ♀, Ecuador (DEIE). **Syn. nov. Fig. 315.**

- quadripustulata* Melichar, 1915: 11 (*Tomaspis*); Lallemand, 1931: 168 (syn. with *Tomaspis illuminatula*); Metcalf, 1961: 192 (*Sphenorhina*). Syntypes 1♂, Paraguay (MM); 4♂, 'Paraguay' (MM), not examined. **Fig. 818.**
- fimbriolata** (Stål, 1854: 250) (*Monecphora*); Metcalf, 1961: 94 (*Tomaspis*). Syntypes 4♂, 1♀, Brazil (NRS). **Figs 276, 453.**
- fraseri** (Distant, 1909: 202) (*Tomaspis*); Metcalf, 1961: 167 (*Delassor*). Syntype ♂, Ecuador (BMNH). **Figs 267, 610.**
- *funebris** (Distant, 1909: 199) (*Tomaspis*); Metcalf, 1961: 96. Syntype ♀, Peru (BMNH). **Fig. 584.**
- gorgonae** (Lallemand, 1928: 637) (*Sphenorhina*); Metcalf, 1961: 167 (*Delassor*). Syntype ♂, Gorgona Island (BMNH). **Figs 270, 523.**
- inconclusa** (Metcalf, 1961: 227) (*Monecphora*) (new name for *M. incarnata* Lallemand, 1924, nec *M. incarnata* Walker, 1851 (S. Africa)); Metcalf, 1961: 227. Syntypes 5♂, 1♀, Ecuador (BMNH). **Figs 256, 764.**
- incarnata* Lallemand 1924b: 482 (*Monecphora*); Metcalf, 1961: 227. [Preoccupied, see *inconclusa*.]
- *indicata** Distant, 1909: 211; Metcalf, 1961: 504. Syntype ♀, Brazil (BMNH). **Fig. 585.** [A coloured habitus and line figure of the syntype were given by Lallemand, 1912, Plate 4, figs 5, 5a. See comments under *M. petrificata*.]
- insignita** (Fowler, 1897: 177, Table 11, fig. 4, 4a) (*Tomaspis*); Metcalf, 1961: 100. Fennah, 1979: 270; Thompson, 1997, fig. 2a. Syntypes 4♂ (BMNH), 1♀ (NMW), Panama. **Plate 7, Fig. D; Fig. 788.**
- liturata** (Le Peletier & Serville, 1825: 606) (*Cercopis*); Metcalf, 1961: 195 (*Sphenorhina*). Type(s) unknown 'Brazil'. **Figs 271, 774.** [Identified from material from Brazil and Peru, standing under this name in the BMNH, that agree fairly well with the original description and colour habitus figure given by Moreira (1925, Plate 5, figs 1-2). Specimens with a broad (more common) to narrow, dark brown longitudinal band on the tegmen are known with some, (MNRJ) showing these differences from the same locality, all with the same male genitalia.]
- ruforivulata* (Stål, 1854: 250) (*Monecphora*); Metcalf, 1961: 196 (*Sphenorhina*). Type(s) unknown, 'Brazil'. [Listed as a variety of *liturata* by Metcalf (1961). Although the type(s) are unknown, the synonymy first stated by Stål (1862a), is presumed correct.]
- mura** (China & Myers, 1934: 462, figs 6c, f, i) (*Tomaspis*); Metcalf, 1961: 168 (*Delassor*). Holotype ♂, paratypes 4♀, Brazil (BMNH). **Figs 273, 753.**
- *noctua** (Distant, 1909: 200) (*Tomaspis*); Metcalf, 1961: 198 (*Sphenorhina*); Fennah, 1979: 270. Syntype ♀, Brazil (BMNH). **Fig. 616.** [Three other specimens (BMNH) have more extensive red tegminal markings than in the figured type.]

- paraguayana** (Lallemand, 1927a: 116) (*Sphenorhina*); Metcalf, 1961: 168 (*Delassor*). Syntype ♂, Paraguay (BMNH). **Figs 272, 532.**
- †**petrificata** (Germar, 1821: 45) (*Cercopis*); Metcalf, 1961: 107 (*Tomaspis*). Type(s), ‘Brazil’ (unknown). [This species is only tentatively placed in *Mahanarva* as no type specimens are known. A historical specimen (female), from Signoret’s collection (NMW), labelled as this species, is of uncertain identity (see ‘Material and methods – Germar types’). This specimen matches most of the original description (see Appendix 3) but lacks the metallic green sheen on the frontoclypeus and legs and lighter marginal vein of the tegmen. The specimen resembles *M. indicata* and *M. quadripunctata* in size and in having two pale spots subapically on the tegmen but from the former has a more rounded face in profile and from the latter it has a narrower tegmen and from both it lacks a distinct median carina of the frontoclypeus.]
- phantastica** (Breddin, 1904: 58) (*Tomaspis*); Metcalf, 1961: 107. Syntype ♂, Ecuador (DEIE). **Figs 254, 317, 412.** [In Colombian populations red and yellow forms occur with variable dark brown markings (see Carvalho & Webb, 2004).]
- curvata* Melichar, 1915: 12 (*Tomaspis*); Metcalf, 1961: 92. Syntype ♂, French Guiana (MM). **Syn. nov. Fig. 412.**
- posticata** (Stål, 1855: 192) (*Monecphora*); Metcalf, 1961: 108 (*Tomaspis*). Syntype ♂, Brazil (NRS). **Figs 274, 461.**
- quadripunctata** (Walker, 1858a: 88) (*Sphenorhina*); Metcalf, 1961: 132 (*Funkhouseria*). Syntype ♂, Brazil (BMNH). **Figs 268, 691.**
- raripila** (Jacobi, 1908: 205) (*Tomaspis* (*Monecphora*)); Metcalf, 1961: 109 (*Tomaspis*). Syntype ♂, Ecuador (MTD). **Comb. nov. Figs 278, 285, 351.**
- rubripennis** (Schmidt, 1922b: 263) (*Luederwaldtia*); Metcalf, 1961: 539. Syntypes 3♂, 3♀, Brazil (MIZW). **Figs 250, 445.**
- rubropicta** (Melichar, 1915: 13) (*Triecphora*); Metcalf, 1961: 169 (*Delassor*). Syntype ♂, Paraguay (MM). **Figs 269, 415.**
- spectabilis** (Distant, 1909: 195) (*Tomaspis*); Metcalf, 1961: 112. Syntypes 4♂, 1♀, Bolivia (BMNH). **Figs 266, 621.**
- *stygia** (Fowler, 1897: 177, Table 11, figs 6, 6a) (*Tomaspis*); Metcalf, 1961: 113; Fennah, 1979: 270. Syntype ♀, Costa Rica (BMNH). **Fig. 808.**
- tibialis** (Signoret, 1862: 585, plate 15, fig. 8) (*Monecphora*); Metcalf, 1961: 113 (*Tomaspis*). Type(s) unknown, ‘Peru’. **Figs 265, 781.** [The identity of this species is based on two specimens from Peru standing under this name in the BMNH. These match Signoret’s figure except in having the apical half of the vertex yellow and in lacking the subapical band on the tegmen (a feature which is variable in BMNH specimens of Signoret’s other *Mahanarva* species, *basalis*).]

- trifissa** (Jacobi, 1908: 213) (*Tomaspis* (*Sphenorhina*)); Metcalf, 1961: 113 (*Tomaspis*). Syntype ♂, Peru (MTD). **Comb. nov. Figs 279, 284, 358.** [A coloured habitus and line figure of a syntype was given by Lallemant, 1912, Plate 5, fig 5.]
- tristis** (Fabricius, 1803: 90) (*Cercopis*); Metcalf, 1961: 170 (*Delassor*). Syntypes 3♀, no data, ‘America meridionali. Dom. Smidt. Mus. Dom. De Sehestedt’ (ZMUC). **Figs 275, 695, 697, 427.** [The fine discrete orange to red spots on the tegmen are present only on some females examined, i.e. the types of *tristis* and those of its synonym *stellata*, and several other females in the BMNH. In other specimens, including the types of the subspecies, the spots of the apical transverse series are either larger or coalesce to various degrees. As this variation is found together in a series of specimens from Surinam (BMNH), the status of these subspecies is questionable. See original description in Appendix 3.]
- stellata* Walker, 1851: 691 (*Sphenorhina*); Metcalf, 1961: 169 (*Delassor*). Holotype ♀, Brazil (BMNH). **Syn. nov. Fig. 697.**
- semifascia* Walker, 1858a: 88 (*Sphenorhina*); China & Myers, 1934: 455 (syn.); Metcalf, 1961: 171 (*Aeneolamia*). Syntype ♀, Brazil (BMNH). **Fig. 695.** [A similarly marked specimen bearing a contemporary label to the type, also from Para, is in the BMNH.]
- duodecimpunctata* Walker, 1858a: 90 (*Sphenorhina*); China & Myers, 1934: 462 (syn.); Metcalf, 1961: 171 (*Delassor*). Syntype(s) unknown?, Brazil ‘Parà’. **Fig. 679.** [Although possibly correctly placed as a synonym this remains a species of uncertain identity (China & Myers, 1934: 466) as the type may be missing. The status of the figured specimen, bearing the name *duodecimpunctata* and a green museum type disc in the BMNH, is unclear. This specimen is labelled from the non-type locality ‘Cuerna’ (Ecuador) (see Appendix 1) and has only five spots on the tegmen, rather than the six spots originally described. Both specimens with five and six spots are known of *M. tristis*. A Distant(?) annotation against the *duodecimpunctata* species description in the BMNH copy of Walker’s (1858a) work reads ‘= *stellata* Walk.’]
- ssp. guppyi** Ulrich, 1913: 30 (*Tomaspis guppyi*); Metcalf, 1961: 172 (*Delassor*). Syntype(s) unknown, ‘Trinidad’. [Originally described as a valid species but listed as a subspecies of *M. tristis* by Metcalf. The whereabouts of the types are unknown but from the original description of the wing spots ‘12 orange spots running across the wing in two irregular bands’ it probably represents the nominate subspecies. A female specimen from Trinidad (BMNH) has similar wing spots.]
- ssp. monagasi** Fennah, 1949a: 612, figs 1A-B (*Delassor*); Metcalf, 1961: 173. Syntypes 5♂, 1♀, Venezuela (BMNH). **Fig. 385.** [This subspecies matches *M. tristis suffusa* in colour pattern.]

- ssp. quadrimaculata** (Fennah, 1953a: 349) (*Delassor*); Metcalf, 1961: 173. Holotype ♂, Venezuela (BMNH). **Fig. 386.**
- ssp. stalii** (Lallemand, 1912: 98) (*Tomaspis*); Metcalf, 1961: 174. Syntype(s) sex?, 'Southern America' ('Mus. Sehestedt'), not examined. [Named for Stål's (1869: 13) *tristis* var. b from 'America meridionalis'.]
- ssp. suffusa** (Walker, 1851: 689) (*Sphenorhina suffusa*); Metcalf, 1961: 170 (*Delassor*). Syntype ♂, Brazil (BMNH). **Stat. nov., Fig. 698.** [The type aedeagus was figured by China & Myers (1934: 463).]
- ssp. walkeri** (Lallemand, 1912: 98) (*Tomaspis* (*T.*) *suffusa* var.); Metcalf, 1961: 115 (*Tomaspis*). Holotype ♂, Brazil (BMNH). **Comb. nov. Fig. 539.** [Named for Walker's (1858: 180) un-named *suffusa* var..]
- williamsi** (Lallemand, 1924b: 480) (*Monecphora*); Metcalf, 1961: 230. Syntypes 3♂, Ecuador (BMNH). **Figs 263, 510.** [Described from material collected by Rorer and deposited in the collections of Lallemand and C.B. Williams (see 'Material and methods - Lallemand types'). One of the syntypes is labelled from Williams collection and the other two are without collection information.]

Makonaima Distant

- Makonaima** Distant, 1909: 207; Metcalf, 1961: 524. Type species: *M. rivularis* Distant, by original designation.
- lucifera** (Jacobi, 1908: 214) (*Tomaspis* (*Sphenorhina*) *lucifer*); Metcalf, 1961: 525. Syntype ♀, Peru (MTD). **Figs 216, 339, 587.**
- circumducta* Distant, 1909: 208; Nast, 1951a: 197 (syn.); Metcalf, 1961: 525. Syntype ♂, Bolivia (BMNH). **Fig. 587.**
- rivularis** Distant, 1909: 208; Metcalf, 1961: 525. Syntype ♀, Ecuador (BMNH). **Figs 217, 588.** [A coloured habitus and line figure of the syntype was given by Lallemand (1912, Plate 4, figs 3, 3a).]

Marcion Fennah

- Marcion** Fennah, 1951: 147; Metcalf, 1961: 516. Type species: *Tomaspis equestris* Lethierry, by original designation.
- equestris** (Lethierry, 1890: 152) (*Tomaspis*); Metcalf, 1961: 516. Type(s) unknown, 'Venezuela'. **Figs 7, 777.** [Identified from material, from Venezuela, standing under this name in the BMNH.]

Maxantonia Schmidt

- Maxantonia** Schmidt, 1922b: 264; Metcalf, 1961: 243 (syn. of *Cercopis*). Type species: *Sphenorhina quadriguttata* Walker, by original designation. [Genus revived by Fennah (1968: 174) and revised by Nast (1979), the latter providing genitalia

- figures for most of the species genitalia not figured here. All species pre 1955, except where indicated below, were included in *Cercopis* by Metcalf, 1961.]
- aurantiaca** Nast, 1979: 11, figs 65-70. Holotype ♂, paratypes 2♂, Bolivia (MIZW). **Fig. 717.**
- bahiana** (Lallemand, 1924a: 492) (*Triecphora*); Metcalf, 1961: 251; Fennah, 1968: 174. Syntype ♂, Brazil (BMNH), syntypes 'Brazil MNHN' (not found). **Figs 210, 571.**
- bifurcata** Carvalho & Webb, 2004: 384, figs 4, 24, 25. Holotype ♂, Ecuador (BMNH). **Figs 209, 627.**
- cantator** Schmidt, 1922c: 265. Nast, 1979, figs 8-14; Metcalf, 1961: 253. Holotype ♂, Bolivia (MIZW). **Fig. 435.**
- catella** (Jacobi, 1908: 206) (*Tomaspis* (*Triecphora*)); Metcalf, 1961: 253; Fennah, 1968: 174. Syntypes 1♂, Bolivia (MTD); 2♂, 3♀, 'Peru' (MTD), not examined. **Figs 203, 287, 328.** [The syntype from Bolivia shows differences in the shape of the aedeagus to the specimen figured here and a specimen figured by Nast (1979, figs 17-23), both from Peru, Chanchamayo.]
- certa** Nast, 1979: 7, figs 39-45. Holotype ♂, Brazil (MIZW). **Fig. 718.**
- *chiriquensis** (Lallemand, 1924a: 492) (*Triecphora proeminiata* (*sic*) var. *chiriquensis*); Metcalf, 1961: 253. **Comb. nov.** syntype sex?, Panama (MNHN). **Fig. 575.** [Originally recorded from Colombia but the type locality (Chiriqui) is now part of Panama.]
- cognata** Nast, 1979: 9, figs 53-58. Holotype ♂, Brazil (MIZW). **Fig. 719.**
- diversa** Nast, 1979: 18, figs 116-120. Holotype ♂, paratype ♀, Guyana (MIZW). **Fig. 720.**
- flabellata** Nast, 1979: 19, figs 122-128. Holotype ♂, paratype ♀, Brazil (MIZW). **Fig. 721.**
- fortunata** (Lallemand, 1931: 166) (*Triecphora*); Metcalf, 1961: 258; Fennah, 1968: 174. Holotype ♂, Brazil (BMNH), 1♂, 1♀ paratypes, 'Paraguay' (ZMUH), not examined. **Figs 211, 572.**
- galeata** Nast, 1979: 15, figs 102-108. Holotype ♂, Brazil (NMW). **Fig. 722.**
- gracilis** Nast, 1979: 5, figs 24-30. Holotype ♂, Brazil (MIZW). **Fig. 723.**
- inepta** Nast, 1979: 14, figs 86-93. Holotype ♂, paratypes 2♂, Brazil (MIZW). **Fig. 724.**
- innotata** (Lallemand, 1949: 181) (*Triecphora*); Metcalf, 1961: 261; Fennah, 1968: 174. Holotype ♂, Bolivia (BMNH). **Figs 205, 573.**
- jelskii** Nast, 1979: 9, figs 59-64. Holotype ♂, Paraguay (MIZW). **Fig. 725.**
- lineola** (Fabricius, 1803: 94) (*Cercopis*); Metcalf, 1961: 262-263; Fennah, 1968: 174. Syntypes, 1♂, 3♀, no data, 'America meridionali. Do. Smidt. Mus. Dom. De Sehestedt' (ZMUC). **Figs 202, 423.** [A coloured habitus and line figure was given by Lallemand (1912, Plate 4, figs 7, 7a) as *Ocoaxo lineolatus* (Amyot & Serville). See original description in Appendix 3.]

- lobata** Nast, 1979: 20, figs 129-135. Holotype ♂, Brazil (MIZW). **Fig. 726.**
- mylabroides** (Fowler, 1897: 178, Table 11, figs 7, 7a) (*Tomaspis*); Metcalf, 1961: 104 (*Tomaspis*); Fennah, 1968: 174. Syntype ♀, Panama (BMNH). **Figs 214, 800.** [This species occurs in a yellow (figured) and red form.]
- nigripes** (Lallemand, 1931: 167) (*Triecphora*); Metcalf, 1961: 265; Fennah, 1968: 175. Holotype ♀, Brazil (BMNH), paratype ♂, 'Brazil' (ZMUH), not examined. **Figs 207, 574.**
- notata** (Walker, 1851: 689) (*Sphenorhina*); Metcalf, 1961: 105 (*Tomaspis*); Fennah, 1968: 175. Holotype ♀, (locality unknown) (BMNH). [In addition to the figured male from Brazil, three females are from Guyana (BMNH).] **Figs 199, 687.**
- opulenta** Nast, 1979: 7, figs 46-52. Holotype ♂ (NMW), paratype ♀ (MIZW), Brazil. **Fig. 727.**
- plagiata** (Burmeister, 1835: 125) (*Cercopis*); Metcalf, 1961: 268-269; Fennah, 1968: 175. Type(s), 'Brazil' (unknown). **Figs 212, 708.**
- divisa* Walker, 1851: 667 (*Tomaspis*); Signoret, 1853: 182 (syn.); Metcalf, 1961: 268. Holotype ♀, Brazil (BMNH). **Fig. 708.** [As the type is missing the apex of the abdomen its sex cannot be ascertained.]
- *praeminiata** (Fowler, 1897: 179, Table 11, figs 8, 8a) (*Tomaspis*); Metcalf, 1961: 269; Fennah, 1968: 175. Syntype ♀, Panama (BMNH). **Fig. 804.**
- pudica** Carvalho & Sakakibara, 1987: 108, figs 8-14, 18-20. Holotype ♂, Brazil (DZUP). **Fig. 751.**
- *punctigera** (Germar, 1821: 42) (*Cercopis*); Metcalf, 1961: 269-270; Fennah, 1968: 175. Type(s) unknown, 'Brazil'. **Fig. 761.** [The tegmen figure given by Nast (1979, fig. 121) matches both the original description (see Appendix 3) and two females from Brazil in the BMNH. Two historical specimens from Signoret's collection (NMW), labelled as *M. punctigera*, are different species; one is identifiable as *M. quadrifasciata* (see 'Material and Methods – Germar types').]
- quadrifasciata** (Le Peletier & Serville, 1825: 605) (*Cercopis*); Metcalf, 1961: 270-271. Type(s) unknown, 'Brazil'. **Figs 215, 659.** [We do not agree with Nast's (1979) interpretation of this species which is identifiable as *M. scita*. The original description (see Appendix 3) indicates that the base of the scutellum is yellow and the distal tegminal band is 'interrupted in the middle' i.e. it doesn't reach the inner margin of the wing. This description matches the type of *ornata* but not the types of *scita*.]
- ornata* Walker, 1851: 681 (*Monecphora*); Signoret 1853: 183 (syn.); Metcalf, 1961: 270. Holotype ♀, Brazil (BMNH). **Fig. 659.**
- sexmaculata* Lima *et al*, 1994: 37-40, figs 1-11 (*Monecphora*). Holotype ♂ and 4♂ paratypes, Brazil (FOC), not examined. **Syn. nov.**

quadriguttata (Walker, 1851: 689) (*Sphenorhina*); Metcalf, 1961: 271. Holotype ♀, 'Honduras' (BMNH). **Figs 201, 674, 690.**

bipustulata Walker, 1858b: 180 (*Sphenorhina*); Lallemand, 1912: 96 (syn.); Metcalf, 1961: 271. Holotype ♂, Brazil (BMNH). **Fig. 674.**

quercus Carvalho & Sakakibara, 1987: 106. Holotype ♂, Brazil (DZUP). **Fig. 750.**

rubescens (Lallemand, 1949: 181) (*Triecphora*); Metcalf, 1961: 272; Fennah, 1979: 268. Holotype ♀, paratype ♂, Brazil (BMNH); paratype sex? 'Brazil' (IBSP), not examined. **Figs 213, 576.**

scindens (Walker, 1858a: 89) (*Sphenorhina*); Metcalf, 1961: 298; Fennah, 1968: 175. Syntype ♀, Brazil (BMNH). **Figs 206, 434, 693.**

cantatrix Schmidt, 1922c: 265; Nast, 1951a: 197 (syn.); Metcalf, 1961: 298. Holotype ♀, Brazil (MIZW). **Fig. 434.**

scita (Walker, 1851: 671) (*Triecphora*); Metcalf, 1961: 270 (= *C. quadrifasciata*). Syntypes 1♂, 1♀, 1 sex?, Brazil (BMNH). **Status revalidated. Figs 204, 715.** [This species was figured by Nast, 1979: 13, figs 78-85, as *M. quadrifasciata* (see above).]

***signifera** (Lallemand, 1938a: 145) (*Triecphora*); Metcalf, 1961: 299; Fennah, 1968: 175. Syntype ♀, Brazil (BMNH). **Fig. 577.**

speciosa (Lallemand, 1924a: 491) (*Triecphora*); Metcalf, 1961: 299; Fennah, 1968: 175. Syntype ♀, Peru (BMNH). **Figs 208, 578.** [The figured specimen has less conspicuous basal tegminal veins than the type.]

stabilis Nast, 1979: 15, figs 94-101. Holotype ♂, paratype ♂, Brazil (MIZW). **Fig. 728.**

Monecphora Amyot & Serville

Monecphora Amyot & Serville, 1843: 562; Metcalf, 1961: 221-223; Fennah, 1968: 177.

Type species: *Cercopis cingulata* Le Peletier & Serville, by original designation.

cingulata (Le Peletier & Serville, 1825: 606) (*Cercopis*); Metcalf, 1961: 224-225. Type(s) unknown, 'S. America'. **Figs 194, 664.** [Identified from material standing under this name in the BMNH that agrees fairly well with the original description (see Appendix 3).]

soligena Walker, 1858b: 177; Stål, 1862c: 493 (syn.); Metcalf, 1961: 225. Syntypes 1♂, 2♀, 1 sex?, Brazil (BMNH). **Fig. 664.** [There are three syntypes from Petroplis rather than the two originally indicated.]

***fryi** (Distant, 1909: 195) (*Tomaspis*); Metcalf, 1961: 96; Fennah, 1968: 177. Syntype ♀, 'Brazil' (BMNH). **Fig. 611.** [Of two possible type specimens of this species (BMNH), both without locality data, one (distinctly larger) is labelled as the type and the other bears a label with the original recorded Fry collection. However, the original measurements and colour description match

more closely the former of the two specimens, which is therefore considered the only syntype.]

***longitudinalis** Lallemand, 1924a: 384; Metcalf, 1961: 228. Syntype ♀, French Guiana (BMNH). **Fig. 501.**

nigritarsis Stål, 1862a: 14; Metcalf, 1961:105 (*Tomaspis*). Syntype ♀, Brazil (NRS).

Figs 192, 458. [The syntype(s) were originally stated as male. A historical specimen is present in MNHN labelled 'Ouest Capite des mines'.]

***nigroapicata** Lallemand, 1938a: 142; Metcalf, 1961: 228. Syntype ♀, Peru (BMNH). **Fig. 504.**

†opulenta Lallemand, 1954: 4 (replacement name for *Monecphora ornata* Lallemand, 1938a, nec *M. ornata* Walker, 1851). Syntype sex? 'Costa Rica' (BMNH), missing. *ornata* Lallemand, 1938a: 139; Metcalf, 1961: 228. [Preoccupied, see *opulenta* and *ornatissima*.]

ornatissima Metcalf, 1961: 228. [Unnecessary replacement name for *M. ornata* Lallemand.]

pallida Lallemand, 1924a: 382; Metcalf, 1961: 228. Syntype ♂, French Guiana (BMNH). **Figs 191, 505.**

semilutea Stål, 1854: 249; Metcalf, 1961: 111 (*Tomaspis*). Syntype 1♂, 1♀, Brazil (NRS). **Figs 193, 463.**

***sipolisi** (Fallau, 1890: 352) (*Sphenorhina*). Syntype(s) 'Brazil' MNHN? (not found).

Comb. nov. Fig. 363. [The placement of this species is based on a female specimen (figured) from the type locality (Minas Geraes) identified by Lallemand in the BMNH.]

Neaenus Fowler

Neaenus Fowler, 1897: 191; Metcalf, 1962b: 9. Type species: *N. varius* Fowler, by original designation.

varius Fowler, 1897: 191; Metcalf, 1962b: 9-10. Syntypes 2♂, 5♀, Mexico (BMNH). **Figs 6, 783.**

Neolaccogrypota Lallemand

Neolaccogrypota Lallemand, 1924b: 478; Metcalf, 1961: 128. Type species: *N. brunnea* Lallemand, by original designation.

[The identity of this genus is in some doubt as its type species is known only from the female type. If the male tentatively identified by Lallemand as *N. brunnea* (see below) proves to be this species then the genus would be a senior synonym of *Tiodus* Nast.

brunnea Lallemand, 1924b: 479; Metcalf, 1961: 128. Syntype ♀, Ecuador (BMNH). **Figs 60, 511.** [Described from material collected by Rorer and deposited in the

collections of Lallemand and C.B. Williams. The extant syntype is from Williams's collection (see 'Material and methods - Lallemand types'). Nast (1975) stated that the identity of this species was in some doubt and his identity of it at that time was based on specimens, that look like *Choconta circulata* (Nast, 1975: 97, figs 12-15). Earlier, Nast had identified a BMNH male (figured here), as *N. brunnea* with a question mark (determination label dated 1949), its tegmen being noticeably narrower than the type of *N. brunnea* and its face less angulate in profile, similar to *Tiodus nigricans* (Lallemand).]

Neomonecphora Distant

Neomonecphora Distant, 1909: 206; Metcalf, 1961: 120. Type species: *N. insignis* Distant, by original designation.

***apicalis** (Le Peletier & Serville, 1825: 605) (*Cercopis*); Metcalf, 1961: 86 (*Tomaspis*). Type(s) unknown, 'French Guiana'. **Comb. nov. Fig. 775.** [The identity of this species is based on a single female from French Guiana, standing under this name in the BMNH that agrees fairly well with the original description (see Appendix 3)]

***insignis** Distant, 1909: 207; Metcalf, 1961: 120. Syntype ♀, Brazil (BMNH). **Fig. 589.** *nigropraetexta* Lallemand, 1939a: 58 (*Tomaspis*); Metcalf, 1961: 121 (valid species). Syntype ♀, Brazil (HNHM). **Fig. 817. Syn. nov.**

laurentana Lallemand, 1949: 29 (in key); Metcalf, 1961: 120. Syntype ♂, French Guiana (BMNH). **Figs 54, 513.**

lunulata (Lallemand, 1924a: 379) (*Tomaspis*). Lallemand, 1949: 26 (*Tomaspis apicalis lunulata*); Metcalf, 1961: 86. Syntype ♂, French Guiana (BMNH). **Status revalidated, comb. nov. Figs 55, 550.**

obtusa Nast, 1951b: 69, figs 9b, 10a-d; Metcalf, 1961: 121. Holotype ♂, Brazil (NMW). **Fig. 730.**

***robusta** Nast, 1951b: 69, fig. 9c; Metcalf, 1961: 121. Holotype ♀, French Guiana (NMW). **Fig. 731.**

Neosphenorhina Distant

Neosphenorhina Distant, 1909: 205; Metcalf, 1961: 80; Fennah, 1968: 171; Carvalho, 1993: 177. Type species: *Sphenorhina ocellata* Walker, by original designation.

curvipenis Carvalho & Webb, 2004: 384-385, figs 5, 32, 33. Holotype ♂ (BMNH), paratypes 1♂, 1♀ (BMNH), 1♂ (DZUP), Brazil. **Figs 44, 628.**

fešta (Germar, 1821: 40) (*Cercopis*); Metcalf, 1961: 76-77 (*Ischnorhina*); Carvalho, 1993: 177. Type(s), unknown, 'Brazil'. **Figs 43, 689.** [The identity of this species is taken from specimens standing under this name in the BMNH and a historical specimen identified as *fešta* from Signoret's collection (NMW)]

that agree fairly well the original description (see Appendix 3) (see also 'Material and Methods – Germar Types').]

parallela Walker, 1851: 694 (*Sphenorhina*); Signoret, 1853: 183 (syn.); Metcalf, 1961: 77. Holotype ♂, labelled 'South America' (BMNH). **Fig. 689.**

notabilis* (Walker, 1858b: 181) (*Sphenorhina*); Metcalf, 1961: 77-81 (*Ischnorhina*). Syntypes, 2♀, Brazil (BMNH). **Fig. 686.

ocellata (Walker, 1851: 693-694) (*Sphenorhina*); Metcalf, 1961: 80; Carvalho, 1993, figs 38-42. Syntypes 2♀, labelled 'Brazil' and 'South America' respectively (BMNH). **Figs 42, 688.** [Two different descriptions appear under Walker's (1851) species heading (see 'Material and Methods – Walker types'). A coloured habitus and line figure of a syntype were given by Lallemand (1912, Plate 4, figs 4, 4a).]

schombergi Costes & Webb (2004: 393, figs 3, 14-16). Holotype ♂, paratype ♀, Brazil (AMNH). **Fig. 638.**

Notozulia Fennah

Notozulia Fennah, 1968: 177 (*Zulia* (*Notozulia*)). Type species: *Tomaspis entreriana* Berg, by original designation. [Raised to generic level by Carvalho, 1995: 386.]

entreriana (Berg, 1879: 215) (*Tomaspis*); Metcalf, 1961: 93-94 (*Tomaspis*); Fennah, 1968, figs 3A-D; Carvalho, 1995, figs 1-6. Holotype ♀, Argentina (UNLP). **Figs 83, 306, 414, 487.**

partenia Melichar, 1915: 13 (*Triecphora*); Metcalf, 1961: 228 (*Monecphora*). Syntypes 1♂, Paraguay (MM); 1♀ 'Paraguay' (MM), not examined. **Syn. nov. Fig. 414.**

alboornata Lallemand, 1927a: 117 (*Monecphora*); Metcalf, 1961: 224; Fennah, 1968: 178 (syn.). Syntype sex?, Paraguay (BMNH). **Fig. 487.**

Ocoaxo Fennah

Ocoaxo Fennah, 1968: 181. Type species: *Sphenorhina lineata* Walker, by original designation.

[Most species were revised and figured by Nast (1950) (as *Sphenorhina*, followed by Metcalf, 1961). Except where indicated, all combinations in the genus were by Fennah (1968: 182-183).]

assimilis (Walker, 1858b: 182) (*Sphenorhina*); Metcalf, 1961: 187. Holotype ♂, Mexico (BMNH). **Fig. 672.**

bivittus (Walker, 1858b: 181) (*Sphenorhina*); Metcalf, 1961: 188. Holotype ♂, Mexico (BMNH). **Figs 177, 469, 675.**

vittatipennis Stål, 1864: 64 (*Tomaspis*); Nast, 1949: 115 (syn.); Metcalf, 1961: 188. Syntype ♀, Mexico (NMW). [The type depository was originally given as 'Mus. Holm. et Coll. Signoret'.] **Fig. 469.**

- confusus** (Nast, 1950: 142, figs 29a-e) (*Sphenorhina*); Metcalf, 1961: 189. Holotype ♂, Mexico (BMNH). **Figs 162, 733.**
- †**costaricanus** Nast, 1975: 99, figs 20-26. Holotype ♂, 'Costa Rica MIZW' (not found).
- ***cruciatus** (Walker, 1858b: 183) (*Sphenorhina*); Metcalf, 1961: 190. Holotype ♀, Mexico (BMNH). **Comb. nov. Fig. 678.**
- cygnus** (Nast, 1950: 141, figs 3j, 27a-e) (*Sphenorhina*); Metcalf, 1961: 190. Holotype ♂, paratype ♂, Ecuador (BMNH). **Figs 168, 734.** [Both types lack their head and the markings on the holotype are more orange.]
- digitatus** (Nast, 1950: 138, figs 22a-e, 23a, b) (*Sphenorhina*); Metcalf, 1961: 190. Holotype ♂, Ecuador (BMNH). **Figs 165, 735.**
- distans** (Nast, 1950: 141, figs 3g, 3h, 26a-e) (*Sphenorhina*); Metcalf, 1961: 191. Holotype ♂, Colombia (BMNH). **Figs 169, 736.**
- femoratus** (Nast, 1950: 124, figs 2d, 7a-e) (*Sphenorhina*); Metcalf, 1961: 191. Holotype ♂, paratypes 2♀, Mexico (BMNH). **Fig. 737.**
- fowleri** (Lallemand, 1912: 91) (*Tomaspis assimilis* var. *fowleri*); Metcalf, 1961: 192. Holotype ♂, Mexico (BMNH). **Figs 173, 544.** [Named for Fowler's (1897: 189, Plate 11, fig. 28) var. of *assimilis*.]
- imperans** (Fowler, 1897: 188, Table 11, figs 25, 25a) (*Tomaspis*); Metcalf, 1961: 193. Syntypes 2♀, Panama (BMNH). **Figs 163, 793, 794.**
- ssp. sexnotata** (Fowler, 1897: 187) (*Tomaspis*); Metcalf, 1961: 193. Syntypes 1♂, 4♀, Panama (BMNH). **Fig. 794.**
- inflexus** (Nast, 1950: 128, figs 2g, 10a-e) (*Sphenorhina*); Metcalf, 1961: 193. Holotype ♂, paratypes 2♂, 2♀, Mexico (BMNH). **Figs 181, 738.** [Described for the specimens identified and figured by Fowler (1897, plate 11, figs 30, 30a) as *Tomaspis lineata* var. *similis*.]
- insularis** (Lallemand, 1928: 636) (*Sphenorhina*); Metcalf, 1961: 193-194. Syntypes 2♂, Colombia, Gorgona Island (BMNH). **Figs 164, 525.**
- lineatus** (Walker, 1851: 691) (*Sphenorhina*); Metcalf, 1961: 194-195; Fennah, 1968, figs 4A-C. Holotype ♀, 'Honduras' (BMNH). **Figs 178, 684.**
- lineolatus** (Amyot & Serville, 1843: 563, plate 10, fig. 7) (*Sphenorhina*); Metcalf, 1961: 195. Type(s) unknown, 'South America'. **Figs 174, 778.** [Identified from a specimen from Mexico standing under this name in the BMNH that agrees fairly well with the original figure. The coloured habitus and line figure given by Lallemand (1912, plate 4, figs 7, 7a), are referable to *Maxantonia lineola* (Fabricius).]
- nicaraguanus** (Nast, 1950: 130, figs 2I, 12a-d) (*Sphenorhina*); Metcalf, 1961: 197. Holotype ♂, Nicaragua (BMNH). **Figs 176, 739.**
- nuptialis** (Stål, 1864: 64) (*Tomaspis*); Metcalf, 1961: 198. Syntype ♂, Mexico (NMW). **Fig. 466.** [The type was figured by Nast (1950) and was probably that fig-

ured by Fowler (1897, plate 11, figs 31, 31a), who stated: 'A specimen of Stål's in the Vienna Museum collection is figured'.]

- *ornatipennis** (Stål, 1864: 64) (*Tomaspis*); Metcalf, 1961: 199 (*Sphenorhina*). Syntype ♀, Mexico (NRS). **Comb. nov. Fig. 459.** [A similar male from Mexico (BMNH) has been examined. Its aedeagus is like *O. varians*.]
- panamensis** (Nast, 1950: 144, figs 30a-e) (*Sphenorhina*); Metcalf, 1961: 199. Holotype ♂, paratypes 4♂, 3♀, Panama (BMNH). **Figs 167, 740.** [The type series of this species was originally incorrectly stated as 5♂ and 1♀.]
- punctus** (Nast, 1950: 123, figs 2c, 6a-d) (*Sphenorhina*); Metcalf, 1961: 200. Holotype ♂, paratypes 2♀, Mexico (BMNH), 1♂ 'Mexico' (BMNH), missing. **Figs 180, 741.** [Described for four specimens identified and figured by Fowler (1897: 189, plate 11, figs 29, 29a) as *O. lineata* (in part).]
- quezaltanus** (Nast, 1950: 125, figs 1, 2e, 8a-d) (*Sphenorhina*); Metcalf, 1961: 201. Holotype ♂, Guatemala (MIZW). **Figs 179, 742.**
- relatus** (Nast, 1950: 139, figs 24a-d) (*Sphenorhina*); Metcalf, 1961: 201. Holotype ♂, Ecuador (BMNH). **Fig. 743.**
- *ruidus** (Distant, 1893: 95) (*Sphenorhina*); Metcalf, 1961: 205. Syntype ♀, Ecuador (BMNH). **Comb. nov. Fig. 596.**
- secundarius** (Nast, 1950: 131, figs 2j, 13a-d) (*Sphenorhina*); Metcalf, 1961: 206. Holotype ♂, Colombia (MIZW). **Figs 182, 744.** [The figured specimen bears identical data labels to the holotype.]
- septemnotatus** (Distant, 1878: 179) (*Sphenorhina*); Metcalf, 1961: 206. Syntype ♂, Costa Rica (BMNH). **Figs 183, 597.**
- similis** (Walker, 1858b: 182) (*Sphenorhina*); Metcalf, 1961: 206. Syntypes 1♂, 1 sex?, Mexico (BMNH). **Figs 175, 666.** [Although one of the two syntypes is without its genitalia, Nast (1950: 127) recorded that both syntypes were male.]
- tucurricae** (Lallemand, 1924b: 484) (*Sphenorhina*); Metcalf, 1961: 207. Syntype ♂, Costa Rica (BMNH). **Figs 170, 541.**
- tullia** (Distant, 1891: 119) (*Sphenorhina*); Metcalf, 1961: 207. Syntype ♂, Ecuador (BMNH). **Figs 166, 598.**
- turpior** (Fowler, 1897: 187) (*Sphenorhina*); Metcalf, 1961: 207. Syntype ♂, Panama (BMNH). **Figs 171, 784.**
- variens** (Stål, 1864: 65) (*Tomaspis*); Metcalf, 1961: 208; Fennah, 1968: 181. Syntype ♂, Mexico (NRS). **Figs 172, 464.** [Stål mentioned four un-named varieties in his original description, indicating that the type series comprised at least four specimens.]

Olcotomaspis Lallemand

Olcotomaspis Lallemand, 1949: 29; Metcalf, 1961: 116. Type species: *Tomaspis versicolor* Lallemand, by monotypy.

versicolor (Lallemand, 1927a: 118) (*Tomaspis*); Metcalf, 1961: 116. Syntypes 2♀, Guatemala (BMNH). **Figs 186, 557.**

Orodamniss Fennah

Orodamniss Fennah, 1953b: 357; Metcalf, 1961: 176 (*Deois* (*Orodamniss*)). Type species: *Tomaspis rhynchosporae* China & Myers, by original designation.

rhynchosporae (China & Myers, 1934: 457) (*Tomaspis*); Metcalf, 1961: 177 (*Deois* (*Orodamniss*)); Sakakibara, 1979: 27, figs 51-55. Holotype ♂, paratypes 4♀, Venezuela (BMNH). **Figs 95, 756.** [Five paratypes were originally indicated.]

Pachacanthocnemis Schmidt

Pachacanthocnemis Schmidt, 1910: 332; Metcalf, 1961: 503; Fennah, 1968: 175. Type species: *P. simillima* Schmidt, 1910, by original designation (= *Triecphora bella* Walker, 1851).

bella (Walker, 1851: 672) (*Triecphora*); Metcalf, 1961: 503. Holotype ♂, Colombia (BMNH). **Figs 185, 447, 712.** [Despite considerable differences in colour pattern (as figured) all species synonymised here have identical male genitalia. However, a smaller specimen from Costa Rica has the paramere with a sub-apical hook-like process (Fig. 185c).]

simillima Schmidt, 1910: 333; Nast, 1951a: 197 (syn.); Metcalf, 1961: 503. Syntype ♂, Ecuador (MIZW). **Fig. 447.** [Two syntypes were originally indicated.]

ssp. lugubris (Fowler, 1896:105) (*Tomaspis* (*Monecphora*) *picata* var. *lugubris*)); Metcalf, 1961: 107. Syntype ♂, 'New Granada' (NMW). **Comb. nov. Fig. 802.**

ssp. picata (Fowler, 1896: 105) (*Tomaspis* (*Monecphora*) *picata*); Metcalf, 1961: 107 (*Tomaspis picata*). Syntypes 1♂, 1♀, 'New Granada' (NMW). **Stat. nov., Comb. nov. Fig. 803.**

Pachypterinea Lallemand

Pachypterinea Lallemand, 1927b: 208; Metcalf, 1961: 585. Type species: *P. fusca* Lallemand, by original designation.

fusca Lallemand, 1927b: 208; Metcalf, 1961: 585. Syntypes 1♀, Brazil (BNMH); 1 sex? 'Brazil MNHN' (not found). **Fig. 514.**

Panabrus Fennah

Panabrus Fennah, 1953b: 357; Metcalf, 1961: 220. Type species: *Tomaspis dominicanus* Distant, by original designation.

dominicanus (Distant, 1909: 197) (*Tomaspis*); Metcalf, 1961: 220-221; Fennah, 1953b, figs 15A-J. Syntypes 2♀, Dominica (BMNH). **Figs 184, 609.**

Plagiophleboptena Schmidt

Plagiophleboptena Schmidt, 1910: 329; Metcalf, 1961: 508. Type species: *P. tigrina* Schmidt, by original designation. [Nast, 1951b (1950): 71, considered this genus to be similar to *Tomaspisina*. The male genitalia are unknown]

Paratriecphora Lallemand, 1949: 181; Metcalf, 1961: 508. Type species: *Paratriecphora smaragdina* Jacobi, by original designation. [Synonymised by Nast, 1951 (1950): 71.]

***smaragdina** (Jacobi, 1908: 206) (*Tomaspis* (*Triecphora*)); Metcalf, 1961: 509. Syntype ♀, Bolivia (MTD). **Fig. 355.**

†**tigrina** Schmidt, 1910: 331; Metcalf, 1961: 509. Type material: holotype ♀, ‘Ecuador Stettiner Museum’ (not found). [Although not found in MIZW, the holotype female was examined by Nast, 1951b (1950): 71.]

Prosapia Fennah

Prosapia Fennah, 1949a: 606; Metcalf, 1961: 208-209. Type species: *Cercopis bicincta* Say, by original designation.

[The genus has been revised by Fennah (1953b) and Hamilton (1977), the latter giving figures of most of the species. Fennah’s genitalia figures, referred to by Hamilton (1977), were drawn *in situ* and are therefore inadequate. Hamilton (1977) did not examine Fennah’s types and although they have been examined here, further work is still required on this difficult genus. Caution is needed when comparing the parameres with published figures as slight differences in orientation can change the appearance of, and relative position between, the apical process and subapical lobe (see Fig. 113c).]

bicincta (Say, 1830: 303) (*Cercopis*); Metcalf, 1961: 209-214. Syntype(s), USA, Indiana (destroyed). **Plate 11, Figs A-C; Figs 647-649, 658.** [Commonly known as the ‘two lined spittlebug’. Fennah (1953b: 340) regarded the synonyms below (except *P. neglecta*) as subspecies of *P. bicincta*, but Hamilton (1977) reinstated earlier synonymies based on insufficient morphological and distributional differences.]

bifascia Walker, 1851: 679 (*Monecphora*); Signoret, 1853: 183 (syn.); Metcalf, 1961: 215 (*P. bicincta bifascia*). Syntype 1♂, locality unknown (BMNH); syntype ‘1’ sex?, missing. **Fig. 649.** [A syntype is figured (*in situ*) by Fennah 1953b, figs 4A-C. The same(?) genitalia (cleared here) are as figured by Hamilton (1977) with the apex of the aedeagus as in his fig. 39. See comments under *P. bicincta*.]

- angusta* Walker, 1851: 680 (*Monecphora*); Metcalf, 1961: 213-214 (*P. bicincta angusta*). Holotype ♀, USA (BMNH). **Fig. 647.** [The genitalia figured (*in situ*) by Fennah (1953b, figs 2A-C), were not from the type (as he indicated) but from a specimen labelled as 'angusta var.' with a green Walker museum type label. This specimen was placed as a possible synonym of *ripalis* by Hamilton (1977: 629).]
- basalis* Walker, 1851: 683 (*Monecphora*); Metcalf, 1961: 214 (*P. bicincta basalis*). Holotype ♂, Jamaica (BMNH). **Fig. 648.** [The holotype genitalia were figured (*in situ*) by Fennah (1953b, figs 3A-C) and are as figured by Hamilton with the aedeagus as in his fig. 39. See comments under *P. bicincta*.]
- neglecta* Walker, 1851: 683 (*Monecphora*); Metcalf, 1961: 209. Holotype ♀, Jamaica (BMNH). **Fig. 658.**
- fraterna* Uhler, 1864: 160 (*Monecphora*); Metcalf, 1961: 215-216 (*P. bicincta fraterna*). Type(s) unknown, 'Cuba'. [Habitus and genitalia figured by Metcalf & Bruner (1944, figs 1A, B, 8) and apex of aedeagus figured by Fennah (1953b, fig. 4D). [See comments under *P. bicincta*.]
- chiapana** Hamilton, 1977: 626, figs 7, 18, 25. Holotype ♂, paratype ♀, 'Mexico' ('CNIC'), not examined.
- flavifascia** (Metcalf & Bruner, 1925: 96) (*Tomaspis*); Metcalf, 1961: 226 (*Monecphora*). Type(s) unknown, 'Cuba'. **Comb. nov.** [External and genitalia figures were given by Metcalf & Bruner (1944, Plate 58, figs 2, 3)].
- fortior** Hamilton, 1977: 628, figs 8, 17, 24. Holotype ♂, paratypes 2♂, 1♀, 'Panama' ('CNIC'), not examined.
- hemelytra** Hamilton, 1977: 628, figs 16, 29, 42, 48. Holotype ♂, paratype ♀, 'Mexico' ('CNIC'), not examined.
- ignifera** Hamilton, 1977: 626, figs 20, 30, 37, 46. Holotype ♂, paratypes 4♂, 'Mexico' ('CNIC'), not examined.
- ignipectus** (Fitch, 1856: 389) (*Monecphora*); Metcalf, 1961: 216 (*P. bicincta ignipecta*); Hamilton, 1977: 626. Type(s), 'USA' ('NYSM'), type not examined. **Fig. 780.**
- inferens** (Walker, 1858b:176) (*Monecphora*); Metcalf, 1961: 219 (*P. simulans inferens*). Holotype ♀, Mexico (BMNH). **Fig. 655.** [The identity of this species is currently as given by Hamilton (1977) who examined specimens from Costa Rica and Mexico, although these did not match the type exactly.]
- isobar** Hamilton, 1977: 629, figs 22, 31, 35, 43, 44. Holotype ♂, paratypes 4♂, 'Mexico' ('CNIC'), not examined.
- latens** Fennah, 1953b: 347, figs 10A-E; Metcalf, 1961: 218. Syntypes 3♂, Costa Rica (BMNH). **Figs 116, 394.** [Of the three syntypes, two (originally mounted together) lack their abdomens, including genitalia. One is without markings

and one has the tegminal markings (spots) as described by Fennah. The third syntype, also without markings has its genitalia (cleared here) with the apices of the subgenital plates broken as figured (*in situ*) by Fennah (1953b). The nominate subspecies differs from *turrialbae* in lacking tegminal bands and in having the aedeagal processes more subapical and the shaft slightly narrower, the latter differences not obvious from Fennah's figures.]

ssp. turrialbae Fennah 1953b: 347, figs 11A-D; Metcalf, 1961: 218. Holotype ♂, paratypes 12♂, 3♀, Costa Rica (BMNH). **Fig. 395.** [Originally recorded on *Paspalum fasciculatum* but *Setaria paniculifera* appears on the label. See comments under *P. latens*.]

miles (Fowler, 1897: 182, plate 11, figs 12, 12a) (*Tomaspis*); Metcalf, 1961: 103; Hamilton, 1977: 623. Holotype ♂, Panama (BMNH). **Fig. 799.** [The genitalia of this species are similar to *P. plagiata* (Fig. 112) but the gonopore of the aedeagus arises less apically, as in *P. latens* (Fig. 116).]

plagiata (Distant, 1878: 178) (*Sphenorhina*); Metcalf, 1961: 218. Syntypes 2♂, Costa Rica (BMNH). **Figs 112, 515, 595.** [As *Tomaspis plagiata* (Distant) this was, and is, a retained secondary homonym of *Maxantonia plagiata* (Burmeister, 1835), previously placed in *Tomaspis* by Lallemand (1912: 96). A replacement name (*Tomaspis distanti*) was proposed by Lallemand (1912: 92) but this was itself a primary homonym of *T. chapada distanti* Lallemand (1912: 91) and *T. compressa distanti* Lallemand (1912: 92). One of the syntypes (with wings set) has a hand-written determination label with the word 'type' and a museum red type disc. This is probably the specimen referred to as 'the type' by Fennah (1953b: 348) and figured and referred to incorrectly as 'the unique type' by Fowler (1897: 187, plate 11, figs 21, 21a).]

distanti Lallemand, 1912: 92 (*Tomaspis* (*T.*)); Metcalf, 1961: 218. [Preoccupied replacement name, see remarks under *plagiata*.]

biformis Lallemand, 1927a: 115 (*Sphenorhina*); Fennah, 1953: 348 (syn.); Metcalf, 1961: 218. Syntypes 1♂, 1♀, Costa Rica (BMNH). **Fig. 515.** [Both syntypes have a handwritten determination label with the word 'type' but presumably the male syntype, with a red museum disc, was the one referred to as 'the holotype' by Fennah (1953b: 348).]

ripalis Fennah, 1953b: 345, figs 9A-D (*P. simulans ripalis*); Metcalf, 1961: 220. Holotype ♂, paratypes 4♂, Belize (BMNH). **Figs 117, 396.** [Raised to the species level by Hamilton (1977) based on Fennah's original figures *in situ*. The type's cleared genitalia show a similarity with *simulans* but with the apex of the aedeagus slightly angled.]

simulans (Walker, 1858b: 183) (*Sphenorhina*); Metcalf, 1961: 218-219. Holotype ♂, Mexico (BMNH). **Plate 11, Fig. E; Figs 113, 452, 696.** [Fennah's (1953) figs

5A-C (*in situ*) are from the same holotype genitalia as are those cleared and figured here.]

fasciaticollis Stål, 1864: 63 (*Tomaspis*); Metcalf, 1961: 209 (syn. of *P. bicincta*); Hamilton, 1977: 629 (syn. of *P. simulans*). Lectotype ♂, Mexico (NRS). **Fig. 452.** [Lectotype designated by Hamilton, 1977: 629. The type depository was originally given as ‘Mus. Holm. et Coll. Signoret’.]

ssp. mulieris Fennah, 1953b: 342, figs 6A-C; Metcalf, 1961: 220. Syntypes 2♀, Mexico (BMNH). **Fig. 400.**

ssp. sordida Fennah, 1953b: 343, figs 8A-B; Metcalf, 1961: 220. Holotype ♀, Guatemala (BMNH). **Fig. 399.** [Although placed as a possible synonym of *P. ripalis* by Hamilton (1977: 629) its status must remain uncertain due to the absence of associated males.]

ssp. unifasciata (Lallemand, 1927a: 115) (*Sphenorhina*); Metcalf, 1961: 220. Syntype ♂, Belize (BMNH). **Figs 114, 538.** [Placed as a possible synonym of *simulans* by Hamilton (1977) but it may also be a valid species. The aedeagus matches that of *simulans*, but the paramere apex is different (compare Figs 113c and 114c). Also the pale band on the tegmen (Fig. 114) is broader than in any other *Prosapia* species, excepting the red banded specimen identified by Hamilton (1977, fig. 15) as *P. inferens*.]

teapana Fennah, 1953b: 343, figs 7A-D (*P. simulans teapana*); Metcalf, 1961: 220. Holotype ♂, Mexico (BMNH). **Figs 115, 397.** [The genitalia were figured (*in situ*) by Fennah (1953b, 7A-D). The same genitalia (cleared here) are similar to Hamilton’s (1977) figures as follows: aedeagus (as ‘fig. 37’, *P. ignifera*, with gonopore extending to level of apical processes), paramere (as ‘fig. 48’, *P. hemelytra*) and subgenital plate spiculate ridge (as ‘fig. 31’, *P. isobar*). An additional male from Mexico and a female from ‘Las Mercedes’ (BMNH) match the type.]

ssp. zunilana Fennah, 1953b: 345, figs 8C-E (*P. simulans zunilana*); Metcalf, 1961: 220. Holotype ♂, Guatemala (BMNH). **Fig. 398.** [Proposed as a possible synonym of *teapana* by Hamilton (1977: 626). There is a very slight difference in aedeagus between the two subspecies (types only examined) i.e. the shaft is straighter apically with the gonopore slightly longer in *zunilana*.]

Schistogonia Stål

Schistogonia Stål, 1869: 14 (*Ischnorhina* (*Schistogonia*); Metcalf, 1961: 64; Carvalho, 1993:166. Type species: *Cercopis sanguinea* Fabricius, by subsequent designation of Schmidt, 1920: 68.

***bidentata** Schmidt, 1920: 72; Metcalf, 1961: 64. Holotype ♀, labelled ‘South America’ (MIZW). **Fig. 432.**

cercopoides (Walker, 1858b: 179) (*Sphenorhina*); Metcalf, 1961: 65. Holotype ♂, Brazil (BMNH). **Figs 57, 448, 677.**

simulans Schmidt, 1920: 70; Metcalf, 1961: 65. Syntypes 2♀, Guyana (MIZW).

Syn. nov. Fig. 448.

***distanti** (Lallemand, 1912: 92) (*Tomaspis* (*T.*) *compressa* var. *distanti*) ; Metcalf, 1961: 66-67 (*Baethkia*). Syntype ♀, Brazil (BMNH). **Fig. 548.** [Named for Distant's (1909: 205) *Tomaspis compressa* (Le Peletier & Serville) var. b. A part of Lallemand's (Distant's) type series became Nast's *S. neglecta* and the remaining specimen he transferred to *Schistogonia* (as *S. distanti*), the latter move overlooked by Metcalf, 1961.]

neglecta Nast, 1949: 475; Metcalf, 1961: 65. Holotype ♂, paratype ♀ (syntypes of *S. distanti*), Brazil (BMNH). **Figs 58, 732.** [Named for Lallemand's (1912: 92) *Tomaspis* (*T.*) *compressa* var. *distanti*, in part.]

sanguinea (Fabricius, 1803: 89) (*Cercopis*); Metcalf, 1961: 65; Carvalho, 1993, figs 1-6. Holotype ♀, no data, 'America meridionali Mus. Dom. Hunter' (ZMUC). **Figs 59, 426.** [A coloured habitus and line figure of the holotype was given by Lallemand (1912, Plate 5, fig 8). See original description in Appendix 3.]

Simorhina Jacobi

Simorhina Jacobi, 1908: 209; Metcalf, 1961: 117. Type species: *S. sciodes* Jacobi, by original designation.

sciodes Jacobi, 1908: 209; Metcalf, 1961: 117. Syntype ♂, Bolivia (MTD) **Figs 3, 289, 354.** [Described from Bolivia and Peru. A coloured habitus and line figure of a type was given by Lallemand (1912, plate 5, figs 8, 11).]

Sinopia Sakakibara

Sinopia Sakakibara, 1977: 111. Type species: *S. signata* Sakakibara, by original designation.

signata Sakakibara, 1977: 112. Holotype ♂ (DZUP), paratype ♀ (BMNH), Brazil. **Figs 93, 768.**

Sphenoclypeana Lallemand & Synave

Sphenoclypeana Lallemand & Synave, 1952: 8; Metcalf, 1961: 126; Fennah, 1968: 171; Carvalho, 1993: 173. Type species: *Tomaspis parana* Distant, by original designation. [Nast (1951b: 58) noted the close relationship of this genus with *Typeschata* and examination of the genitalia in the present study indicates possible future synonymy when more material is to hand. However, although both genera were placed in Ischnorhinini by Fennah (1968), the postclypeus in *Sphenoclypeana* is not as laterally compressed as in

similar genera (see ‘Classification’), with its lateral diagonal ridge absent or barely visible. Nast (1951b: 64) also noted the similarity between the pairs of species, as listed below.]

Guarania Nast, 1951b: 58; Metcalf, 1961: 79. Type species: *Tomaspis consanguinea* Distant, by original designation. [Preoccupied by *Guarania* Carvalho & China, 1951.]

brasiliensis (Distant, 1909: 194) (*Tomaspis*); Metcalf, 1961: 126. Syntype ♀, Brazil (BMNH). **Figs 41, 601.** [The reference (by authors) to Walker’s (1851: 683) misidentification of *S. marginata* Fabricius as this species is confirmed after examination of the Walker specimen in the BMNH. No other specimen examined has the dorsal red area of an otherwise dark postclypeus, as found in the type.]

haematina (Germar, 1821: 39) (*Cercopis*); Metcalf, 1961: 74 (syn. of *Homalogrypota coccinea* (Fabricius); Carvalho, 1993: 174, figs 27-31 (as *S. chapada*). **Status revalidated. Figs 547, 602.** Type(s), ‘Brazil’ (unknown). [The identity of this species is taken from a historical specimen from Signoret’s collection (NMW) identified as *haematina* (see ‘Material and methods – Germar types’) and specimens identified as *chapada* (BMNH) that agree fairly well with the original description of *haematina* (see Appendix 3). The description differs only in that the examined specimens do not have a clear red apex of the scutellum and the “narrow black edge” of the tegmen does not extend greatly onto the hind margin. Although Metcalf (1961) listed this species as a junior synonym of *Homalogrypota coccinea* (Fabricius), following Signoret (1853: 182), it would appear from Signoret’s text that he was only correcting the determination of specimens in the BMNH (from *haematina* to *coccinea*), rather than formally synonymising the two species.]

chapada (Distant, 1909: 194) (*Tomaspis*); Metcalf, 1961: 79 (*Guarania*). **Syn. nov.** Syntype sex?, Brazil (BMNH). **Fig. 602.** [In referring to the types of this species, Nast (1951b (1950): 62-63, figs 3e, 6a-b) stated: ‘The male specimen described by Distant lacks the abdomen’ and of its variety *distanti*: ‘the specimen of *T. chapada* var. *distanti* Lall. is a female’. Under the material examined, Nast lists: ‘1♂ (type)’ of *chapada* and ‘1♀ (type of variety)’. Distant however, did not give the sex of the *chapada* type(s) and the syntype of *distanti* is a male.]

chapada var. *distanti* Lallemand, 1912: 91 (*Tomaspis* (*T.*)); Nast, 1951b: 62 (syn.); Metcalf, 1961: 79. Syntype ♂, Brazil (BMNH). **Fig. 547.** [Named for Distant’s (1909: 194) ‘*chapada* var’. See also comments under *chapada*.]

consanguinea (Distant, 1909: 194) (*Tomaspis*); Metcalf, 1961: 79 (*Guarania*). Syntype ♀, Brazil (BMNH). **Fig. 605.** [The tegmen and male genitalia were figured by Nast (1951b figs 3a, 4).]

parana (Distant, 1909: 193) (*Tomaspis*); Metcalf, 1961: 126-127. Syntype ♀, Brazil (BMNH). **Figs 40, 617**. [The same specimen, as figured here, was figured by Nast (1951b (1950), figs 3b-c, 5a-b) who also noted Distant's misidentification of the sex of the syntype.]

ssp. major (Nast, 1951b: 60) (*Tomaspis*); Metcalf, 1961: 127. Syntype ♀, Brazil (BMNH). **Fig. 747**. [Replacement name for *Guarania parana* var. *distanti* (Lallemand) nec *Guarania chapada distanti* (Lallemand)].

parana var. *distanti* (Lallemand, 1912: 96) (*Tomaspis* (T.)); Metcalf, 1961: 127. [Named for Distant's (1909: 193) *parana* syntype 'var. a'. Preoccupied.]

Sphenorhina Amyot & Serville

Sphenorhina Amyot & Serville, 1843: 562; Metcalf, 1961: 185; Fennah, 1968: 179. Type species: *Cicada rubra* Linné, by subsequent designation (Blanchard, 1848: 747). [Except where indicated all combinations in the genus were by Fennah (1968).]

Phytozamia Fennah, 1949a: 610; Metcalf, 1961: 186. Type species: *Cicada rubra* Linné. Objective synonym (Fennah, 1968: 179). [When Fennah (1949) erected *Phytozamia* with type species *rubra*, he followed Distant (1908) in accepting *S. lineolata* Amyot & Serville as the type species of *Sphenorhina*. However, he had overlooked the earlier designation of *rubra* as the type of *Sphenorhina* by Blanchard (1848). Therefore *Phytozamia* became an objective synonym.]

aequinoctialis (Jacobi, 1908: 211) (*Tomaspis* (*Sphenorhina*)); Metcalf, 1961: 85 (*Tomaspis*). Syntypes 1♂, 1♀, Ecuador (MTD); 1♀ 'Ecuador' (MTD), not examined. **Comb. nov. Figs 147, 290, 322**. [The syntype male differs from the habitus figured female syntype and other specimens (female) in having the medial brown band of the tegmen indistinct.]

badia Carvalho & Sakakibara, 1999: 97-98, figs 5, 22-25. Holotype ♂, Brazil (MCPU).

binotata (Lallemand, 1912: 89, Plate 4, figs 1a-b) (*Ischnorhina*); Metcalf, 1961: 76. Syntype ♂, Ecuador (BMNH). **Figs 156, 479**. [A coloured habitus and line figure were the only original description given of this species.]

bipunctata (Lallemand, 1912: 96) (*Tomaspis* (T.) *phalerata* var. *bipunctata*); Metcalf, 1961: 200. Syntype ♀, Peru (MTD) **Stat. nov. Figs 154, 545**. [Named for Jacobi's (1908: 212) *Tomaspis* (*Sphenorhina*) *phalerata* var. b. A syntype (male) of *Tomaspis hebes* Distant (Distant's var. of *hebes*) belongs to this species. The genitalia figured are from a topotypic specimen.]

boliviana (Jacobi, 1908: 212) (*Tomaspis* (*Sphenorhina*)); Metcalf, 1961: 88 (*Tomaspis*). Syntypes 1♀, Bolivia (MTD); 1♂, 2♀ 'Bolivia' (MTD), not examined. **Figs 120, 291, 326**.

- brevispina** Carvalho & Webb, 2004: 386-387, figs 10, 26, 27. Holotype ♂, Ecuador(?) (BMNH). **Figs 157, 629.**
- cingula** (Melichar, 1915: 9) (*Tomaspis*); Metcalf, 1961: 89 (*Tomaspis*). Syntypes 1♂, Paraguay (MM); 1♀, 'Paraguay' (MM), not examined. **Comb. nov. Figs 141, 409.**
- clarivenosa** (Jacobi, 1908: 213) (*Tomaspis* (*Sphenorhina*)); Metcalf, 1961: 90 (*Tomaspis*). Syntypes 1♀, Ecuador (MTD); 2♀(MTD), not examined. **Figs 148, 292, 331.** [The yellow marking on the veins between the two transverse yellow bands is very variable in this species. With respect to the figured male, the original painting (Fig. 292) and the syntype female examined, the markings are fainter than in another female (BMNH), but not as pale as in the otherwise similar *S. huggerti*.]
- *claviformis** (Jacobi, 1908: 212) (*Tomaspis* (*Sphenorhina*)); Metcalf, 1961: 90 (*Tomaspis*). Syntypes 3♀, Peru (ZMB); 1♀, Peru (MTD); 2♀ 'Peru' (MTD), not examined. **Figs 293, 332.**
- conspicua** Distant, 1879: 62; Metcalf, 1961: 189. Syntypes 2♂, 1♀, Costa Rica (BMNH). **Figs 131, 528, 592.**
- modesta* Lallemand 1924b: 483; Nast, 1951: 198 (syn.); Metcalf, 1961: 189. Syntypes 2♀, Costa Rica (BMNH, MNHN). **Fig. 528.** [Described from Costa Rican material (without collector) deposited in the collections of Lallemand, C.B. Williams and MNHN. Both the BMNH and MNHN syntypes have Lallemand's type determination labels, the former without indication of country origin and the latter collected by Noualhier. See also remarks under 'Material and methods – Lallemand types'.]
- coronata** Lallemand, 1938a: 144; Metcalf, 1961: 189. Syntype ♀, Peru (BMNH). **Figs 119, 518.**
- croceofasciata** Lallemand, 1924b: 485; Metcalf, 1961: 189-190. Syntype ♂, Ecuador (BMNH). **Figs 128, 519.**
- danielsoni** Sakakibara & Carvalho, 1999: 92, figs 1, 7-10. Holotype ♂ (MZLU), paratype ♀ (DZUP), Peru. **Figs 155, 643.**
- *decernens** Walker, 1858a: 91; Metcalf, 1961: 190. Syntype ♀, Colombia (BMNH). **Fig. 705.**
- *discoidea** (Melichar, 1915: 10) (*Tomaspis*); Metcalf, 1961: 92. Syntype ♀, Bolivia (MM). **Fig. 413.**
- discors** (Jacobi, 1942: 116) (*Tomaspis* (*Sphenorhina* (*sic*))). Holotype ♂, Peru (MTD). **Comb. nov. Figs 196, 333.** [Omitted from Metcalf's (1961) catalogue. Tentatively included in *Sphenorhina* based on its similar facial shape and apical extension of the paramere, but differs in having a more distal spine on the subgenital plate and a pair of apical aedeagal processes. See also comment under 'Material and methods – Jacobi types']

- *dissimilis** (Distant, 1909: 198) (*Tomaspis*); Metcalf, 1961: 92-93. Syntype ♀, Colombia (BMNH). **Comb. nov. Fig. 607.**
- distinguenda** Walker, 1858b: 182; Metcalf, 1961: 191. Holotype ♀, Venezuela (BMNH). **Figs 125, 707.** [The specimen figured and identified by Fowler (1897, plate 11, figs 15, 15a), as *T. rubra* Linnaeus, is this species and is from the same series as the specimen figured here.]
- emerita** (Jacobi, 1908: 210) (*Tomaspis* (*Sphenorhina*)); Metcalf, 1961: 93 (*Tomaspis*). Syntypes 1♂, 1♀, Peru and Bolivia respectively (MTD). **Figs 145, 334.**
- erigenea** (Breddin, 1904: 58) (*Tomaspis*); Metcalf, 1961: 94. Syntype ♀, Ecuador (DEIE). **Figs 134, 314, 417.** [The figured specimen has the same data label as the type specimen (see 'Identifying types').]
- semirufa* Melichar, 1915: 10 (*Tomaspis*); Metcalf, 1961: 111. Syntypes 1♂, Ecuador (MM); 1♂ 'Ecuador' (MM), not examined. **Syn. nov. Fig. 417.**
- *fallaciosa** Lallemand, 1938b: 320; Metcalf, 1961: 191. Holotype ♀, paratype ♀, Ecuador (BMNH). **Fig. 521.**
- fissurata** Lallemand, 1938a: 144; Metcalf, 1961: 191. Syntype ♂, Bolivia (BMNH). **Figs 122, 522.**
- galbana** (Jacobi, 1908: 210) (*Tomaspis* (*Sphenorhina*)); Metcalf, 1961: 98 (*Tomaspis*). Syntypes 1♀, Peru (MTD); 1♂, 2♀ (DEIE), not examined. **Figs 130, 294, 335.**
- hebes** (Distant, 1909: 203) (*Tomaspis*); Metcalf, 1961: 192. Syntypes 5♂, 12♀, 2 sex?, Bolivia (BMNH). **Figs 138, 612.** [Of the syntypes only two specimens (including Distant's var., see *S. phalerata*) have the original spelling for the type locality 'Yungas de la Paz'. The remaining syntypes (including a specimen labelled as the type) have a printed 'Toungas de la Paz'.]
- huggerti** Sakakibara & Carvalho, 1999: 94, figs 2, 11-14. Holotype ♂, Ecuador (MZLU), paratypes 3♀ (MZLU, DZUP). **Figs 149, 644.** [See comments under *S. clarivenosa*.]
- *intricator** Lallemand, 1938b: 319; Metcalf, 1961: 194. Holotype ♀, paratypes 2 ♀, Ecuador (BMNH). **Fig. 526.**
- jacobii** (Lallemand, 1912: 96) (*Tomaspis* (*T.*) *phalerata* var. *jacobii*); Metcalf, 1961: 200. Syntype ♂, Peru (MTD). **Stat. nov. Figs 159, 549.** [Named for Jacobi's (1908: 212) *Tomaspis* (*Sphenorhina*) *phalerata* var. a. The syntype also has the aedeagal process appearing to be broken apically as in the figured specimen.]
- johannae** (Distant, 1908: 316) (*Triecphora*); Metcalf, 1961: 129 (*Paramonecphora*); Fennah, 1968: 180. Holotype ♂, locality? (BMNH). **Figs 142, 622.** [As noted by Fennah (1968: 180) the type is labelled from the Island of Johanna (off the East Coast of Africa) in error.]
- †kuhlgatzi** (Jacobi, 1908: 214) (*Tomaspis* (*Sphenorhina*)); Lallemand, 1912: 94; Metcalf, 1961: 101 (*Tomaspis*). Type(s), 'Colombia ZMB' (not found). **Comb.**

- nov.** [Based on its original description (see Appendix 3), and in the absence of type material, this species is tentatively included in *Sphenorhina*].
- latifascia** Walker, 1851: 688; Metcalf, 1961: 194. Syntype ♀, Colombia (BMNH). **Figs 160, 671.**
- limbata** Lallemand, 1927a: 115 (*S. phalerata* var. *limbata*); Metcalf, 1961: 200. Syntypes 2♂, Argentina (BMNH). **Stat. nov. Figs 143, 534.**
- livida** (Jacobi, 1908: 211) (*Tomaspis* (*Sphenorhina*)); Metcalf, 1961: 102 (*Tomaspis*). Syntype ♂, Ecuador (MTD). **Figs 140, 295, 321.**
- melanoptera** (Germar, 1821: 43) (*Cercopis*); Metcalf, 1961: 103 (*Tomaspis*). Syntype ♂, Brazil (ZMUH). **Figs 144, 760.** [See ‘Material & methods Germar types’.]
- minuta** Carvalho & Webb, 2004: 386, figs 9, 30, 31. Holotype ♂, paratype ♂, Bolivia (BMNH). **Figs 118, 630.**
- nigricephala** Carvalho & Webb, 2004: 385, figs 6, 28, 29. Holotype ♂, paratype ♂, Ecuador (BMNH). **Figs 133, 631.**
- nigrotaenia** Lallemand, 1924b: 486; Metcalf, 1961: 197. Syntypes 3♂, 1♀, Ecuador (BMNH). **Figs 158, 530.** [Described from material deposited in the collections of Lallemand and C.B. Williams (without reference to the collector). All syntypes are labelled as collected by Rorer, two (ex Lallemand collection) bear the label ‘Ex-Typus’, one bears a Williams collection label and the other is of unknown origin (see ‘Material and methods – Lallemand types’).]
- nigrotarsis** (Signoret, 1853: 183) (*Sphenorhina*); Metcalf, 1961: 197-198. **Nomen nudum.** [It would appear that this species was never described. Signoret (1853: 183) noted that this name (as a manuscript name) stood under specimens in his collection and also applied to the three specimens that Walker (1851: 686) had identified as *Sphenorhina compressa* (Le Peletier & Serville) in the BMNH.]
- *normandiae** Lallemand, 1924b: 482; Metcalf, 1961: 198. Syntype ♀, Ecuador (BMNH). **Fig. 531.**
- nox** (Breddin, 1904: 58) (*Tomaspis*); Metcalf, 1961: 198. Syntype ♂, Ecuador (DEIE). **Figs 146, 318.**
- obliterata** Lallemand, 1931: 167 (*S. rubra* var. *obliterata*); Metcalf, 1961: 205. Holotype ♂, Colombia (ZMUH), paratypes 1♂, 1♀, Colombia (BMNH). **Stat. nov. Figs 126, 535.**
- pallida** Lallemand, 1924b: 484 (*S. rubra* var. *pallida*); Metcalf, 1961: 205. Lectotype ♂, Ecuador (here designated), paralectotypes 3♂, 2♀, 1 sex?, Bolivia, Ecuador, Peru (BMNH). **Stat. nov. Figs 135, 536.** [No type material was listed in the original description but the following specimens (possibly not conspecif-

ic) under this name from the Lallemand collection, except the first (as listed here) which is labelled C.B. Williams collection (which also bears Lallemand's handwritten determination label), are labelled as types in the BMNH: 1♂ (genitalia on slide) and 1♀, Ecuador, Prov. del Orienta, Canelos, 1500', Jan. 1918, J.B. Rorer; 1♂ (lectotype, here designated) and 1♀, Ecuador, Tena, F.X. Williams, 8.iii.1923 and 18.iii.1923 (respectively), on sugar cane; 2♂, Bolivia, Mapiri and 1 sex? Peru, Chanchamayo. As the type series is possibly mixed it is considered desirable to designate a male syntype (see above) as lectotype.]

- pallifascia** (Walker, 1858a: 91) (*Sphenorhina*); Metcalf, 1961: 199. Syntype ♂, Colombia (BMNH). **Figs 132, 709.**
- parambae** (Jacobi, 1908: 211) (*Tomaspis* (*Sphenorhina*)); Metcalf, 1961: 106 (*Tomaspis*). Syntype ♂, Ecuador (MTD) **Comb. nov. Figs 123, 296, 346.**
- phalerata** (Jacobi, 1908: 212) (*Tomaspis* (*Sphenorhina*)); Metcalf, 1961: 199-200. Syntype ♀, 'Peru' (MTD), type not examined. **Figs 129, 811.** [Jacobi's two varieties of this species (a and b) were subsequently named as var. *jacobii* and var. *bipunctata* respectively by Lallemand and are here considered different species. Externally the three species differ in having the tegmen comprising either a single distal yellow spot (*bipunctata*) a pair of distal spots (*phalerata*) or an irregular distal band (*jacobii*).
- pichita** Sakakibara & Carvalho, 1999: 96, figs 4, 19-21. Holotype ♂ (IMLA), paratype ♂ (MCPU), Peru.
- proserpina** (Distant, 1909: 202) (*Tomaspis*); Metcalf, 1961: 108. Syntypes 1♂, 1♀, Bolivia (BMNH). **Figs 139, 618.** [The figured non-type specimen has the original spelling for the type locality 'Yungas de la Paz' where as the syntypes have a printed 'Toungas de la Paz' label (see also *S. hebes*).]
- quadrifera** (Jacobi, 1908: 210) (*Tomaspis* (*Sphenorhina*)); Metcalf, 1961: 109 (*Tomaspis*). Syntype 1♂, Ecuador (MTD). **Figs 137, 297, 350.**
- *rhodopepla** (Breddin, 1904: 58) (*Tomaspis*); Metcalf, 1961: 109-110. Syntype ♀, Ecuador (DEIE). **Comb. nov. Fig. 319.** [External appearance as in *S. melanoptera*.]
- rubens** Lallemand, 1931: 167 (*S. hebes* var. *rubens*); Metcalf, 1961: 192. Holotype ♀ (BMNH), paratype ♀ (ZMUH), Peru. **Stat. nov. Figs 153, 524.**
- rubra** (Linnaeus, 1758: 438) (*Cicada*); Metcalf, 1961: 201-205. Neotype ♂ (here designated), Brazil (BMNH). **Figs 161, 758, 763.** [As the type material of this species is lost a male specimen with data: Brazil, Mato Grosso, 12°49'S 51°45'W, 27.xii.1968, W.J. Knight, is selected and labelled as the neotype (for justification see 'Material and methods – Linnaeus types'). As there are other externally similar species, the status of the following synonyms and subspecies is uncertain.]

- cruentata* Fabricius, 1775: 688 (*Cercopis*); Fabricius, 1781: 329 (syn.); Metcalf, 1961: 201. Syntype(s) sex?, 'Habitat Surinami. Drury' (not found). [See remarks under 'Material and methods – Fabricius types' and original description in Appendix 3.]
- tricolor* Guérin-Méneville, 1844: 368 (*Cercopis*); Walker, 1851: 688 (syn.); Metcalf, 1961: 202. Type(s) unknown, 'Colombia'.
- ssp. sororia** (Germar, 1821: 41) (*Cercopis sororia*); Metcalf, 1961: 205. Syntypes 1♀ (ZMUH), 1♂ (BDZM) Brazil (not examined). **Fig. 758.** [See 'Material and methods - Germar types' and original description in Appendix 3.]
- rubrolurida** Sakakibara & Carvalho, 1999: 98, figs 6, 26-28. Holotype ♂ (BMNH), paratype ♂ (MCPU), Bolivia. **Fig. 642.**
- ruficollis** (Fallou, 1890: 351) (*Monecphora*); Metcalf, 1961: 110 (*Tomaspis*). Syntypes 1♂, 4♀, Ecuador (MNHN). **Comb. nov. Figs 151, 361.**
- rufomaculata** (Fallou, 1890: 351) (*Monecphora*); Metcalf, 1961: 229. Syntypes 2♂, Ecuador (MNHN). **Comb. nov. Figs 152, 362, 540.**
- translucida* Lallemand, 1924a: 490; Metcalf, 1961: 207. Syntype ♀, Ecuador (BMNH). **Syn. nov. Fig. 540.**
- †**sericea** Lallemand, 1931: 168; Metcalf, 1961: 206. Holotype sex? 'Brazil Lallemand collection' (missing); paratypes sex? 'Brazil ZMUH' (not found).
- simplex** (Walker, 1858a: 90) (*Sphenorhina*); Metcalf, 1961: 112 (*Tomaspis*). Syntypes 1♂, 1 sex?, Colombia (BMNH). **Figs 127, 711.**
- solita** (Melichar, 1915: 11) (*Tomaspis*); Metcalf, 1961: 112. Syntype ♂, Venezuela (MM). **Figs 124, 418.**
- trifasciata** (Melichar, 1915: 11) (*Tomaspis*); Metcalf, 1961: 113; Fennah, 1968: 175 (*Maxantonia*). Syntype ♂, Bolivia (MM) **Comb. nov. Figs 136, 420.**
- unifasciata** Sakakibara & Carvalho, 1999: 95, figs 3, 15-18. Holotype ♂, Ecuador (MZLU), paratypes 3♀, (MZLU, DZUP). **Figs 150, 645.**
- veterana** (Jacobi, 1908: 210) (*Tomaspis* (*Sphenorhina*)); Metcalf, 1961: 114 (*Tomaspis*). Syntypes 1♂, Peru (MTD); 1 sex?, 'Peru' and or 'Bolivia' (DEIE), not examined. **Figs 121, 298, 342.**
- *victoriae** Lallemand, 1924b: 485; Metcalf, 1961: 208. Syntype ♀, Ecuador (BMNH). **Fig. 543.**

Tapaiuna Fennah

- Tapaiuna** Fennah, 1968: 188. Type species: *Triecphora antica* Walker, by original designation.
- antica** (Walker, 1851: 674) (*Triecphora*); Metcalf, 1961: 248 (*Cercopis*). Syntype ♀, Venezuela (BMNH). **Figs 25, 402, 704.** [See 'Biology – Natural enemies'.]
- caduca* Fennah, 1951: 145 (*Hyboscarta*); Metcalf, 1961: 506; Fennah, 1968: 189 (syn.). Syntype♂, Venezuela (BMNH), syntypes 2♂, 5♀, 'Venezuela' (not found). **Fig. 402.**

distincta (Distant, 1878: 178). (*Sphenorhina*); Metcalf, 1961: 93 (*Tomaspis*). Syntype ♂, Costa Rica (BMNH). **Comb. nov. Figs 27, 608.** [As the type was the only specimen examined by Fowler 1897: 186, this must have been his figured specimen (plate 11, figs 17, 17a).]

pehlkei (Schmidt, 1909: 243) (*Hyboscarta*); Metcalf, 1961: 506; Fennah, 1968: 189. Lectotype ♂, here designated, paralectotype ♀, Ecuador (MIZW). **Figs 26, 443.** [As the type series is mixed it is considered desirable to designate the male syntype as lectotype. The female syntype(s) became the type(s) of *Hyboscarta andina* Schmidt.]

Tiodus Nast

Tiodus Nast, 1951b: 55; Metcalf, 1961: 78; Fennah, 1968: 171, 1979: 268; Carvalho, 1993:170. Type species: *T. elongatus* Nast, by original designation. [See remarks under *Neolaccogrypota*.]

elongatus Nast, 1951b: 56, figs 1a-d; Metcalf, 1961: 78. Holotype ♂, Panama (MIZW). **Fig. 745.**

minor Nast, 1951b: 57, figs 2a-b; Metcalf, 1961: 79. Holotype ♂, Colombia (BMNH). **Figs 63, 746.**

nigricans (Lallemand, 1938a: 137) (*Neolaccogrypota brunnea nigricans*); Metcalf, 1961: 128. Syntype ♂, Peru (BMNH). **Stat. nov., Comb. nov. Figs 61, 512.**

nuchalis (Jacobi, 1908: 205) (*Tomaspis (Monecphora)*); Metcalf, 1961: 105 (*Tomaspis*). Syntypes 1♀, Peru (MTD); 1♂, 3♀ 'Peru' (MTD), not examined; 1 sex?, 'Peru' (DEIE), not examined. **Comb. nov. Figs 288, 343.** [Based on two topotypic specimens of this species (MTD and NCSU). The male genitalia are similar to *T. nigricans* (**Fig. 61**) but the aedeagus is narrower in antero-posterior view.]

rufescens Fennah, 1979: 269, figs 1-8. Holotype ♂, paratypes 1♂, 2♀, 1 sex?, Peru (BMNH). **Figs 62, 401.** [The figured specimen and one female may or may not be two of the paratypes recorded from Choquisongo. These specimens lack the full data originally recorded, which are on the holotype and one paratype.]

youngi (Costes & Webb, 2004:391-392, figs 4, 11-13) (*Neolaccogrypota*). Holotype ♂, Peru (NMNH). **Fig. 641. Comb. nov.**

Tomaspis Amyot & Serville

Tomaspis Amyot & Serville, 1843: 560; Metcalf, 1961: 81-84. Type species: *Cercopis furcata* Germar by subsequent designation of Distant, 1909: 192.

furcata (Germar, 1821: 39) (*Cercopis*); Metcalf, 1961: 96-97. Syntypes 1♀ (ZMUH), 1 sex? (BDZM), Brazil; Sakakibara, 1977: 111, figs 1-5. **Plate 1, Fig. A; Figs**

- 219, 416, 437, 446, 757.** [A colour and line figure were given by Lallemand (1912, plate 4, figs 11, 11a). See also comments under *nigricans*.]
- collaris* Le Peletier & Serville, 1825: 605 (*Cercopis*); Amyot & Serville 1843: 560 (syn.); Metcalf, 1961: 96. Type(s) unknown, 'Brazil'. [See original description in Appendix 3.]
- nigricans* Amyot & Serville, 1843: 560; Metcalf, 1961: 104; Sakakibara, 1977: 111 (syn.). Type(s) unknown, 'Brazil'. [A habitus figure was given by Sakakibara (1977, fig. 2) as a dark form of *T. furcata*. Our figures of this form (Fig. 219e, f) show a slight difference in the armature of the aedeagus to the paler form (Fig. 219a, b).]
- rufifrons* Melichar, 1915: 9; Lallemand, 1949: 26 (syn. of *T. nigricans*); Metcalf, 1961: 104; Sakakibara, 1977: 111 (syn. of *T. furcata*). Syntypes 1♂, Paraguay (MM); 2♂, 'Paraguay' (MM), not examined. **Fig. 416.** [Described from Paraguay and Brazil.]
- rufifrons* Schmidt, 1922a: 176; Lallemand, 1949: 26 (syn. of *T. nigricans*); Metcalf, 1961: 104; Sakakibara, 1977: 111 (syn. of *T. furcata*). Holotype sex?, 'Brazil' (MZUSP), not examined.
- furcata* var. *rufipennis* Schmidt, 1922a: 176; Metcalf, 1961: 97; Sakakibara, 1977: 111 (syn.). Holotype ♀, Brazil (MIZW). **Fig. 446.**
- furcata* var. *completa* Schmidt, 1922a: 176; Nast, 1951b: 67 (syn.); Metcalf, 1961: 97. Syntypes 2♀, Brazil (MIZW). **Fig. 437.** [One of the three specimens in MIZW labelled as a type does not have the original recorded data.]

Tomaspisina Distant

Tomaspisina Distant, 1909: 206; Metcalf, 1961: 125. Type species: *Sphenorhina frontalis* Walker, by original designation.

[As the type species is known only from the female, Nast (1951b (1950)) only tentatively assigned his new species *T. fuliginosa* and *T. rubromarginata* to the genus. He also observed a close relationship between *Tomaspisina* and *Plagiophlebotena*, but the very reticulate tegminal venation and shape of the paramere of the former, as figured by Nast (1951b (1950: 72)), separates the two genera.]

- *frontalis** (Walker, 1858a: 89) (*Sphenorhina*); Metcalf, 1961: 125. Syntype ♀, Colombia (BMNH). **Fig. 682.** [A coloured habitus and line figure of the syntype was given by Lallemand, 1912, Plate 4, figs 12, 12a.]
- †fuliginosa** Nast, 1951b (1950): 73, figs 12a-e; Metcalf, 1961: 125. Holotype ♂, 'Peru' (BMNH), missing. **Fig. 197** (from original). [See original description in Appendix 3.]

***rubromarginata** Nast, 1951b (1950): 72; Metcalf, 1961: 126. Holotype ♀, Colombia (NMW). **Fig. 748.**

Tomaspisinella Lallemand

Tomaspisinella Lallemand, 1927a: 117; Metcalf, 1961: 513. Type species: *T. parva* Lallemand, by original designation.

***apicifasciata** (Fowler, 1897: 186) (*Tomaspis*); Metcalf, 1961: 86 (*Tomaspis*). Syn-type ♀, Panama (BMNH). **Comb. nov. Fig. 785.** [This species runs to this genus in Fennah's (1968) key to Neaenini and is tentatively placed here on this basis.]

***parva** Lallemand, 1927a: 118; Metcalf, 1961: 513. syntype sex?, Ecuador (BMNH). **Fig. 565.**

Tropidorhinella Schmidt

Tropidorhinella Schmidt, 1910: 336; Metcalf, 1961: 503; Fennah, 1968: 175. Type species: *Tomaspis (Sphenorhina) inflata* Jacobi, 1908, by subsequent designation (Lallemand, 1912: 103).

inflata (Jacobi, 1908: 213) (*Tomaspis (Sphenorhina)*); Metcalf, 1961: 504. Lectotype ♂ (here designated), paralectotypes 3♂ (representing all three species, see below), Peru (MTD); 1 sex?, 'Bolivia' (DEIE), not examined. **Figs 64, 336.** [Type specimens were originally (ambiguously) recorded from 'Peru: Urubamba bis [to] Bolivia: Yugas'. Emmrich (1974) treated this statement in the widest sense to include specimens from Peru: Pachitea and Vilcanota (MTD) as syntypes, whereas the only known specimens from Yugas (labelled Yungas) and Urubamba were listed as 'Supplementary' (see 'Material and methods – Jacobi types'). As the type series (sensu Emmrich, 1974) comprises all three species of the genus a lectotype is designated to stabilise the identity of *inflata*. The selected specimen has an almost entirely dark pronotum (Fig. 64e), is labelled from Pachitea and has a red 'typus' label. Some other specimens, considered to be the same species (BMNH, MTD), including one of the paralectotypes (Vilcanota), have a red pronotum (Fig. 64f) and similar male genitalia. Although the aedeagus is similar in *T. montana* there are differences in colour pattern and in the subgenital plate and paramere (see figures of respective species). See also comments under *T. onorei*.]

†**lanio** (Le Peletier, & Serville, 1825: 606) (*Cercopis*); Metcalf, 1961: 101 (*Tomaspis*). Type(s), 'Brazil' (unknown). **Comb. nov.** This species is only tentatively placed in *Tropidorhinella* as the type specimens are unknown. However, its description (see Appendix 3) indicates an appropriate small size and colour pattern for members of this genus. Although the genus was not previously

recorded from Brazil, two specimens of *T. inflata* are present in DZUP (pers. com. A. Sakakibara).

montana Schmidt, 1918: 204; Metcalf, 1961: 504. Syntypes 1♂, 1♀, Colombia (MIZW). **Figs 65, 442.**

onorei Carvalho & Webb, 2004: 387, figs 7, 20. Holotype ♂, Colombia, paratypes 2♂, 3♀, Ecuador (BMNH). **Figs 66, 299, 632.** [This species is referable to the yellow variety mentioned in the original description of *T. inflata* and to which a paralectotype of *inflata* (Pachitea) examined belongs (see under *T. inflata*). A painting of this or another borrowed specimen (Fig. 299) was commissioned by Distant (see ‘Material and methods – Original paintings’).]

Tunaima Fennah

Tunaima Fennah, 1968: 183; Carvalho, 1991: 259. Type species: *Monecphora brunneorubra* Lallemant, by original designation.

brunneoaurantiaca Carvalho, 1991: 259, figs 1-5, 11, 12. Holotype ♂, Brazil (DZUP).

brunneolutea Carvalho, 1991: 264, figs 6-10, 13-15. Holotype ♂, Brazil (DZUP). **Fig. 622.**

brunneorubra (Lallemant, 1927a: 116) (*Monecphora*); Metcalf, 1961: 224; Fennah, 1968, figs 5A-D. Syntype ♀, Brazil (BMNH). **Figs 76, 489.** [There are five specimens in the BMNH from the type locality Theresopolis (printed, and one hand-written). Only one of these (with Lallemant’s type determination label) has the originally recorded date, and is considered a syntype. A male from this series shows a very slight difference in the shape of the apical ventral process of the paramere compared to the specimen figured here and that figure by Fennah (1968).]

decorata (Lallemant, 1924a: 382) (*Monecphora*); Metcalf, 1961: 225; Fennah, 1968: 184. Syntype ♂, Brazil (BMNH). **Fig. 493.**

fasciatipennis (Stål, 1862a: 14) (*Monecphora*); Metcalf, 1961: 94 (*Tomaspis*). Syntypes 1♂, 1♀, Brazil (NRS). **Comb. nov. Figs 74, 454.**

***ferranti** (Lallemant, 1924a: 381) (*Monecphora*); Metcalf, 1961: 226; Fennah, 1979: 269. Syntype ♀, Brazil (BMNH). **Fig. 494.**

fossor (Lallemant, 1938a: 140) (*Monecphora*); Metcalf, 1961: 226; Fennah, 1968: 184. Syntype ♂, Brazil (BMNH). **Figs 77, 499.**

insignifica (Metcalf, 1961: 227) (*Monecphora*) (replacement name for *M. insignis* Lallemant); Fennah, 1968: 184. Holotype ♂, Colombia (BMNH). **Figs 78, 765.**
insignis Lallemant, 1938a: 141 (*Monecphora*); Metcalf, 1961: 227. [Preoccupied by *Monecphora insignis* Walker, 1858.]

***lepida** (Stål, 1862a: 14) (*Monecphora*); Metcalf, 1961: 102 (*Tomaspis*). Syntypes 2♀, Brazil (NRS). **Comb. nov. Fig. 456.**

- pellucens** (Stål, 1862a: 14) (*Monecphora*); Metcalf, 1961: 106 (*Tomaspis*); Fennah, 1979: 269. Syntypes 2♂, Brazil (NRS). **Figs 80, 460, 558.** [Only one of the Stål types is labelled from the type locality Rio de Janeiro (see also ‘Material and methods – Stål types’).]
- divisa* Walker, 1858a: 92 (*Sphenorhina*); Metcalf, 1961: 115. [Preoccupied: placed in *Tomaspis* by Lallemand, 1912: 98 together with *T. divisa* Walker, 1851 (secondary homonym), see *T. walkeri*.]
- walkeri* Lallemand, 1912: 98 (*Tomaspis* (*T.*)); Metcalf, 1961: 114. Syntype ♂, Brazil (BMNH). **Syn. nov. Fig. 558.** [Replacement name for *Sphenorhina divisa* Walker, 1858.]
- semiflava** (Stål, 1854: 250) (*Monecphora*); Metcalf, 1961: 111 (*Tomaspis*). Syntype ♂, Brazil (NRS) **Comb. nov. Figs 81, 462, 614.** [This species is tentatively placed in *Tunaima* based on the structure of the aedeagus and spine at the base of the subgenital plate. It differs from this genus in having an apical upturned spine on the subgenital plate and narrow paramere. The transverse brown band of the tegmen can be either complete or fragmented.]
- jonesi* Distant, 1909: 196 (*Tomaspis*). Syntypes 2♀, Brazil (BMNH); Metcalf, 1961: 167-168 (*Delassor*). **Syn. nov. Fig. 614.** [The syntype quoted in the original description as originating from NMW and bearing Signoret’s ms name *uniformis* is one of the two in the BMNH. Another specimen (female) bearing the same name (alluded to in Distant’s description as in NMW) and one other female are in NMW.]
- trifasciata** (Lallemand, 1938a: 141) (*Monecphora*); Metcalf, 1961: 113 (*Tomaspis*); Fennah, 1968: 184. Syntypes 1♂, 1♀, Brazil (BMNH). **Figs 82, 509.** [Aedeagus of unique male missing.]
- vinula** (Stål, 1854: 249) (*Monecphora*); Metcalf, 1961: 114 (*Tomaspis*). Syntype ♂, Brazil (NRS) **Comb. nov. Figs 79, 465.**

Typeschata Schmidt

Typeschata Schmidt, 1920: 84; Metcalf, 1961: 72; Carvalho, 1993: 178. Type species: *Sphenorhina rufivaria* Walker, by original designation.

[The status of the three included species is uncertain as there are only slight differences in the male genitalia. Schmidt (1920: 86-87) made the following comparative statement under *T. intermedia* (translated from German): ‘Shares with *rufivaria* red legs which separate it from *T. flammans* in which the legs are black. Head, thorax (including the tegmen) as in *T. flammans* and distinct from *T. rufivaria* as [in *T. rufivaria*] the black colour extends to near base of clavus disrupted by red longitudinal band on claval corium suture from the base to apex of clavus and on the pronotum two black stripes which go from anterior to posterior margin onto scutellum.’]

flammans (Walker, 1858b: 179) (*Sphenorhina*); Metcalf, 1961: 72-73. Syntypes 2♀, Brazil (BMNH); 1 sex? 'Brazil BMNH' (missing). **Figs 470, 681**. [We have seen only a single male (ZMB) that matches the female type. This has the apex of the aedeagus as in *T. intermedia*, in anterior/posterior view (Fig. 39e), but slightly broader in lateral view. See comments under generic remarks and *T. intermedia*.]

acuta Stål, 1862a: 14 (*Sphenorhina*); Metcalf, 1961: 72. Syntypes 2♀, Brazil (NRS). **Fig. 470**. [See 'Material and methods – Stål types'.]

intermedia Schmidt, 1920: 86; Metcalf, 1961: 73. Syntypes 9♂, Brazil (MIZW). **Figs 39, 438**. [In this species and *T. flammans* the brown medial marking on the tegmen is less extensive than in *T. rufivaria* and the aedeagal apex is broader in anterior/posterior view (compare Figs 38b and 39e). However, the configuration of the apical aedeagal processes varies in the type series and can be similar to *T. rufivaria*. A possible syntype from Lallemand's collection with labels matching those on the syntypes is in the BMNH (see 'Material and methods - Identifying types' and remarks under genus and *T. rufivaria*).]

marginata (Fabricius, 1787: 273) (*Cercopis*); Metcalf, 1962a: 35 (*Gypona*); Carvalho, 1993, figs 43-47. **Comb. rev.** Syntype ♀, 'America meridionali Mus. Dom. Hunter' (HMAG). **Figs 38, 692, 810**. [See 'Material and methods – Fabricius types' and original description in Appendix 3.]

rufivaria (Walker, 1851: 686) (*Sphenorhina*); Signoret, 1853: 183 (syn.); Metcalf, 1961: 73 (*Tomaspis rufivaria*). Syntypes 1♀, Brazil (BMNH); 1 sex? 'Brazil BMNH' (missing). **Syn. rev. Fig. 692**. [The above mentioned specimen bears a green Walker type disc and printed determination label (characteristic of Walker's types) but lacks data labels. Of two other 'old' specimens in the BMNH, one with a printed 'Brazil' label could possibly be the other syntype, and the other specimen with a handwritten 'Brazil' label has an inappropriate BMNH registration label '68 4' (=1868). See remarks under genus and *T. intermedia* and 'Material and methods – Fabricius types'.]

Urubaxia Fennah

Urubaxia Fennah, 1968: 173, 184. Type species: *Hyboscarta tricolor* Distant, by original designation.

tricolor (Distant, 1909: 190) (*Hyboscarta*); Metcalf, 1961: 507. Syntype ♀, Brazil (BMNH). **Figs 87, 579**.

Vorago Fennah

Vorago Fennah, 1949a: 613, 619; Metcalf, 1961: 180. Type species: *Tomaspis radialis* China & Myers, by original designation.

- boxi** Fennah, 1949a: 615, figs 3A-D; Metcalf, 1961: 180. Syntypes 1♂, 1♀, Venezuela (BMNH), '1♂, 1♀' syntypes, 'Venezuela', (not found). **Figs 223, 404.**
- nanta** Fennah, 1949a: 615, figs 2A-C; Metcalf, 1961: 180. Holotype ♂, Brazil (BMNH). **Figs 221, 405.**
- radicis** (China & Myers, 1934: 464) (*Tomaspis*); Metcalf, 1961: 180. Holotype ♂, paratype 1♀, Guyana (BMNH), '1♂, 1♀' paratype, 'Guyana', (not found). **Figs 220, 755.**
- undulata** (Lallemand, 1924b: 483) (*Sphenorhina*); Metcalf, 1961: 180. Syntype ♂, Ecuador (BMNH). **Figs 222, 542.**

Zuata Fennah

Zuata Fennah, 1968: 189. Type species: *Tomaspisinella araguana* Fennah, by original designation.

[Except where indicated all specific placements in the genus were by Fennah, 1968: 189-190.]

- *angulata** (Jacobi, 1942: 117) (*Tomaspisinella*). Syntypes 1♀, Bolivia (MTD); 1♀, 'Bolivia' (MTD), not examined. **Comb. nov. Fig. 324.** [Described from Bolivia and Peru.]
- araguana** (Fennah, 1951: 143, figs 3A-G) (*Tomaspisinella*); Metcalf, 1961: 512; Fennah (1968: 189, figs 7A-C). Syntypes 1♂, Venezuela (BMNH), '1♂, 2♀' syntypes, 'Venezuela', (not found). **Figs 1h, 19, 403.**
- bimaculata** (Lallemand, 1938a: 137) (*Tomaspisinella*); Metcalf, 1961: 512; Fennah, 1968: 189. Syntype ♀, Peru (BMNH). **Figs 24, 559.**
- bipunctata** (Lallemand, 1924a: 378) (*Tomaspis*); Metcalf, 1961: 512 (*Tomaspisinella*). Syntypes 1♂ (BMNH), 4♀(MNHN), Colombia. **Figs 10, 546.**
- quinquesignata** Lallemand, 1938a: 138 (*Tomaspisinella*); Lallemand, 1949: 116 (syn.); Metcalf, 1961: 512. Syntype(s) sex?, 'Colombia' (BMNH), missing.
- *callangana** (Lallemand, 1949: 116) (*Tomaspisinella*); Metcalf, 1961: 512. Syntype ♀, Peru (BMNH). **Fig. 560.**
- ephippiata** (Breddin, 1904: 59) (*Tomaspis*); Metcalf, 1961: 512 (*Tomaspisinella*). Syntype ♀, Ecuador (DEIE). **Figs 22, 313.** [A coloured habitus and line figure was given by Lallemand (1912, plate 4, figs 8, 8a).]
- fusca** (Lallemand, 1939b: 55) (*Tomaspisinella*); Metcalf, 1961: 512. Syntype ♂, Colombia (BMNH). **Figs 14, 561.**
- inclusens** (Walker, 1858b: 177) (*Monecphora*); Metcalf, 1961: 99 (*Tomaspis*). Holotype ♂, Colombia (BMNH). **Figs 12, 652.**
- *infusca** (Lallemand, 1949: 117) (*Tomaspisinella*); Metcalf, 1961: 513. Syntype ♀, Bolivia (BMNH). **Fig. 562.**

- luteofascia** Carvalho & Webb, 2004: 388, figs 8, 21, 22. Holotype ♂, paratypes 1♂, 3♀, Colombia (BMNH, MCTP). **Figs 20, 633.** [The aedeagus of the figured paratype is now missing.]
- *luteomaculata** (Lallemand, 1949: 117) (*Tomaspisinella*); Metcalf, 1961: 513. Syntype ♀, Peru (BMNH). **Fig. 563.**
- marginata** (Lallemand, 1949: 117) (*Tomaspisinella*); Metcalf, 1961: 513. Holotype ♂, Colombia (BMNH). **Figs 21, 564.** [See 'Material and methods – Lallemand types'.]
- *nolckeni** (Fowler, 1896: 105) (*Tomaspis* (*Monecphora*)); Metcalf, 1961: 105 (*Tomaspis*). Syntype ♀, 'New Granada' (NMW). **Comb. nov. Fig. 791.**
- ochraceorosea** (Lallemand, 1924b: 479) (*Tomaspis*); Metcalf, 1961: 513 (*Tomaspisinella*). Syntype ♂, Ecuador (BMNH). **Figs 23, 551.**
- ohausi** (Jacobi, 1908: 215) (*Tomaspis* (*Triecphora*)); Metcalf, 1961: 513 (*Tomaspisinella*). Syntype ♂, Ecuador (MTD) **Figs 9, 300, 344.**
- *oneraria** (Jacobi, 1942: 116) (*Tomaspisinella*). Syntype ♀, Peru (MTD) **Comb. nov. Fig. 345.** [Omitted from Metcalf's (1961) catalogue.]
- pica** (Jacobi, 1908: 207) (*Tomaspis* (*Triecphora*)); Metcalf, 1961: 513-514 (*Tomaspisinella*). Syntypes, 1♀, 'Bolivia' ('var. d') (MTD); syntypes: 2 ♀, 'Peru' (nominate subspecies) (MTD); 1♀, 'Bolivia' ('var. d') (MTD); 1 sex?, Bolivia (DEIE), not examined. **Comb. nov. Fig. 347.** [In the original description of this species Jacobi distinguished a nominate form and four varieties of which three of the latter (a-c) were given names by Lallemand (see below). In addition to the types noted above, a male examined from Peru, Calanga (MTD), matches the description of the nominate subspecies.]
- ssp. interrupta** (Lallemand 1938a: 139) (*Tomaspisinella*); Metcalf, 1961: 514. Syntype ♂, Bolivia (BMNH). **Figs 11, 552.**
- ssp. limbata** (Lallemand, 1949: 116) (*Tomaspisinella*); Metcalf, 1961: 514. Type(s), 'Peru' (MTD), type not examined. **Comb. nov. Fig. 457.** [Named for Jacobi's (1908: 207) *pica* var. c. The type material of this subspecies is one of the syntypes of *Tomaspis pica* Jacobi from Callanga, listed by Emmrich (1974) (pers. comm. R. Emmrich).]
- praenitida** (Fowler, 1897: 186, Table 11, figs 23, 23a-b) (*Tomaspis*); Metcalf, 1961: 108; Fennah, 1968: 190 (*Zuata*). Syntype ♂, Panama (BMNH). **Figs 67, 795.** [Although similar to *Zuata* in having a broadly swollen postclypeus, which is anteriorly slightly flattened with an indication of two ventral lobes, its genitalia are unusual in having the subgenital plates completely fused and the aedeagus with long apical spines.]
- ssp. secta** (Lallemand, 1949: 116) (*Tomaspisinella*); Metcalf, 1961: 514. Syntype ♀, 'Peru' (MTD), not examined. **Comb. nov.** [Named for Jacobi's (1908: 207)

- Tomaspis pica* var. a. The type material of this subspecies is the syntype of *pica* from Chanchamayo, listed by Emmrich (1974) (pers. comm. R. Emmrich).]
- ssp. truncata** (Lallemand 1949: 116) (*Tomaspisinella*); Metcalf, 1961: 514. Syntype ♂, Peru (HNHM). **Comb. nov.** [Named for Jacobi's (1908: 207) *Tomaspis pica* var. b. The examined syntype is labelled from Peru, Pachitea and matches (and is labelled as (by Jacobi?)), var. b. A 'supplementary' female specimen of *Tomaspis pica* Jacobi from Callanga (MTD), matches this subspecies (pers. comm. R. Emmrich).]
- pseudoripuaris** (Lallemand, 1939a: 58) (*Tomaspisinella*); Metcalf, 1961: 514. Syntypes 1♂, Colombia (BMNH); 1♀, 'Colombia' (HNHM), not examined. **Figs 13, 566.** [The only originally indicated type depository was HNHM.]
- *punctata** (Lallemand, 1949: 118) (*Tomaspisinella*); Metcalf, 1961: 514. Holotype ♀, Peru (BMNH). **Fig. 567.**
- ravida** (Jacobi, 1908: 207) (*Tomaspis* (*Trichphora*)); Metcalf, 1961: 515 (*Tomaspisinella*). Syntypes 1♀, Peru (MTD); 1 sex? 'Bolivia' (DEIE), not examined. **Figs 15, 301, 352.** [The BMNH specimen figured here is from the type locality.]
- ravidella** (Lallemand, 1924a: 379) (*Tomaspis*); Metcalf, 1961: 515 (*Tomaspisinella*). Syntype ♂, Bolivia (BMNH); syntype(s), 'Bolivia MNHM' (not found). **Figs 16, 553.**
- *ripuaris** (Lallemand, 1938a: 139) (*Tomaspisinella*); Metcalf, 1961: 515. Syntype ♀, Paraguay (BMNH). **Fig. 569.**
- *seguyi** (Lallemand, 1924a: 378) (*Tomaspis*); Metcalf, 1961: 515 (*Tomaspisinella*). Syntype ♀, Ecuador (BMNH). **Fig. 554.**
- sierrana** (Lallemand, 1939a: 59) (*Tomaspisinella*); Metcalf, 1961: 515. Syntypes 1♂, Colombia (BMNH); 1♀ 'Colombia' (HNHM), not examined. **Figs 18, 568.**
- *tettigoniella** (Breddin, 1904: 59) (*Tomaspis*); Metcalf, 1961: 515-516 (*Tomaspisinella*). Syntype ♀, Peru (DEIE). **Fig. 320.**
- transita** (Lallemand, 1938a: 138) (*Tomaspisinella*); Metcalf, 1961: 516. Syntypes 1♂, 1♀, Ecuador (BMNH). **Figs 17, 570.**

Zulia Fennah

Zulia Fennah, 1949a: 616, 619; Metcalf, 1961: 180-181. Type species: *Cercopis pubescens* Fabricius, by original designation.

Zulia (**Neozulia**) Fennah, 1953b: 354; Metcalf, 1961: 184. Type species: *Tomaspis vilior* Fowler, by original designation.

[No consistent differences could be found in the shape of the aedeagus to separate the included species. To avoid misidentification based on this structure and until further work is done on this complex of species, only the aedeagus of the type, of the type species (*vilior*), is given.]

birubromaculata (Lallemand, 1927a: 117) (*Monecphora*); Metcalf, 1961: 184. Syntypes 2♂, 4♀, Colombia (BMNH). **Figs 90, 488.**

carbonaria (Lallemand, 1924a: 385) (*Monecphora*); Metcalf, 1961: 224. Syntypes 1♂, 3♀, Colombia (BMNH (1♂, 1♀), MNHN). **Comb. nov. Plate 13, Figs A-D; Figs 89, 490.**

***monticola** (Lallemand, 1927a: 115) (*Sphenorhina*); Metcalf, 1961: 184. Syntypes 3♀, Ecuador (BMNH); syntype(s) '♂', 'BMNH Ecuador' (missing). **Fig. 529.**

morosa (Jacobi, 1908: 214) (*Tomaspis* (*Monecphora*)); Metcalf, 1961: 104 (*Tomaspis*). Syntype ♂, Ecuador (MTD) **Comb. nov. Figs 91, 302, 341.**

vilior (Fowler, 1897: 180, Table 11, figs 11, 11a) (*Tomaspis*); Metcalf, 1961: 184-185. Syntypes 4♂, 2♀, Panama (BMNH). **Figs 88, 500, 809.** [In the type series the tegmen is dark brown without pattern or (one specimen) with three faint transverse orange spots at basal one third.]

laevigata Lallemand, 1924b: 481 (*Monecphora*); Metcalf, 1961: 184. Syntypes 38 (♂ and ♀), Panama (BMNH). **Syn. nov. Fig. 500.** [Described from material from Panama collected by C.B. Williams and originally deposited in the collections of Lallemand and Williams (see 'Material and methods - Lallemand types'). Of the type series specimens (three bearing Lallemand type labels, from Williams's collection (x1) and two from Lallemand's collection (x2)) the orange to scarlet tegminal pattern is usually with three spots cross the wing at basal third and a band across wing at distal third, rarely the pattern is absent.]

ssp. costaricensis Fennah, 1953b: 355; Metcalf, 1961: 185. Holotype ♂, paratype ♂, Costa Rica (BMNH). **Fig. 393.** [The two types have a faint orange to scarlet spot on the basal and distal third of the outer margin of the tegmen.]

Zulia (*Zulia*)

brunnea (Lallemand, 1927a: 116) (*Sphenorhina*); Metcalf, 1961: 181; Fennah, 1953b: 353, figs 13D-F. Syntype ♀, Bolivia (BMNH). **Fig. 516.** [Described from at least two specimens collected by Rorer and deposited in the collections of Lallemand and C.B. Williams (see 'Material and methods - Lallemand types'). The syntype female is from Williams' collection and is labelled with a yellow BMNH paratype disc, suggesting that a specimen labelled holotype may have originally been present. Also, although Fennah (1953b) figured the male genitalia he gave no details of the specimen examined, and there are no males in the BMNH.]

***obscura** (Fowler, 1897: 181) (*Tomaspis*); Metcalf, 1961: 184. Holotype ♀, Mexico (VMW). **Stat. nov. Fig. 801.** [Synonymised (in error) with *Neozulia vilior* by Fennah (1953b: 354). The angled face in profile indicates that this species, known only from the female type, belongs in the subgenus *Zulia*.]

- pubescens** (Fabricius, 1803: 93) (*Cercopis*); Metcalf, 1961: 182-183; Carvalho, 1995, figs 7-12. Syntypes 2♂, 2♀, no data, 'America meridionali' (ZMUC). **Figs 92, 406, 407, 424, 517, 685**. [Further work is needed to establish if any of the following synonyms merit subspecies status. Although there are slight differences in size and colour with the tegmen having none to three spots, all have a similar shaped aedeagus (as figured). See also 'Material examined – Fabricius types'.]
- metallica** Walker, 1851: 692 (*Sphenorhina*); Metcalf, 1961: 181. Syntypes 1♂, locality unknown (BMNH); syntype '1' sex? (BMNH) missing. **Syn. nov. Fig. 685**. [See comments undet 'Material and Methods – Walker types'.]
- colombiana** Lallemand, 1938a: 143 (*Sphenorhina*); Metcalf, 1961: 189. Syntype ♂, Colombia (BMNH). **Syn. nov. Fig. 517**.
- vespillo** Fennah, 1949a: 617, Figs 4A-E; Metcalf, 1961: 182 (*Z. (Z.) metallica vespillo*). Syntypes 7♂, Venezuela (BMNH). **Syn. nov. Fig. 407**. [As none of the syntypes is dissected Fennah's genitalia figures must have been drawn *in situ*.]
- charon** Fennah, 1949a: 618, Figs 5A-D; Metcalf, 1961: 181. Syntypes 1♂, Peru (BMNH); 1♂, 1♀ 'Peru', unknown. **Syn. nov. Fig. 406**. [Fennah's genitalia figures may have been drawn *in situ* as the only extant male was undissected and the cleared genitalia are not identical to the figures (see also *Z. vespilla*).]
- †**costalimar** Franco, 1953: 9 (*Tomaspis*); Metcalf, 1961: 91. Type(s), 'Brazil' (unknown). **Syn. nov.** [Known only from its brief description: 'Species of colour black 7-8mm in length'.]
- ssp. aequatoriana** (Lallemand, 1931: 167) (*Sphenorhina pubescens* var. *aequatoriana*); Metcalf, 1961: 184. Holotype sex?, paratypes sex? 'Equador' ('Lallemand collection'), missing; paratype ♀, Ecuador (ZMUH). **Fig. 813**.

SPECIES OF UNCERTAIN GENERIC PLACEMENT

The following species do not appear to belong to their current or any other described genus or their identities are uncertain. Those known only from their descriptions (types missing) are indicated by †, and those known only from female types are indicated by *. With the exception of *Neaenus luteosignatus*, all were described in *Tomaspis* or included in that genus by Metcalf (1961).

- biolleyi** (Distant, 1900: 693) (*Sphenorhina*); Metcalf, 1961: 87-88 (*Tomaspis*). Syntypes 13♂, Costa Rica (BMNH). **Plate 12, Fig. D; Figs 94, 590**. [Eight of the syntypes have the full data referred to in the original description. The remaining five specimens (all from Distant's collection) including one with Distant's determination label and museum red type disc, have only Costa

Rica. Currently placed in *Tomaspis* but differs in its much smaller size and strongly angularly postclypeus with a longitudinal medial ridge, and from this and other Cercopidae by the shape of its male genitalia.]

- ***crocea** (Walker, 1851: 678) (*Monecphora*); Metcalf, 1961: 91-92 (*Tomaspis*). Holotype ♀, Venezuela (BMNH). [The unique type is missing its head, pronotum, legs (except hind femora) and tegmen; the remaining thorax and abdomen are tawny. From its original description (see Appendix 3) *crocea* clearly does not belong in *Tomaspis*, although no other genus readily comes to mind. In the BMNH copy of Walker's catalogue a hand written '=?4' appears next to the description. This is cross referenced to number 4 which is '*Monecphora lanio*' a much smaller species. Unfortunately no reference is made to these species in Signoret's (1853) account of the BMNH collection at that time.]
- ***cruralis** (Stål, 1862a: 15) (*Sphenorhina*); Lallemand, 1912: 92 (*Tomaspis*); Metcalf, 1961: 92. Syntype ♀, Brazil (NRS). **Fig. 471**. [The laterally compressed and angled postclypeus with an oblique ridge is similar to those genera placed in Ischnorhinini of authors (see 'Classification').]
- handlirschi** Fowler, 1897: 182, plate 11, figs 13, 13a (*Tomaspis*); Metcalf, 1961: 98. Holotype ♂, 'Central America' (NMW). **Figs 198, 787**. [Currently placed in *Tomaspis* but its facial shape with a pair of ventral lobes is similar to those genera placed in Hyboscartini or authors (see 'Classification'). However, its male genitalia separate it from these genera for which males are known.]
- ***inclusa** (Walker, 1858a: 88) (*Sphenorhina*); Lallemand, 1912: 94; Metcalf, 1961: 100. Syntype ♀, Colombia (BMNH). **Fig. 683**. [Differs from *Tomaspis* by its postclypeus being less swollen, strongly angled in profile and with a longitudinal medial ridge.]
- ***intermedia** Fowler, 1897: 178 (*Tomaspis*); Metcalf, 1961: 100. Syntype ♀, Panama (BMNH). **Fig. 796**. [Differs from *Tomaspis* by its postclypeus being less swollen and more angularly rounded in profile.]
- ***laterinotata** Fowler, 1897: 184, plate 11, figs 22, 22a (*Tomaspis*); Metcalf, 1961: 101. Syntype ♀, Mexico (HEC). **Fig. 797**.
- ***luteosignatus** (Valdés Ragués, 1910: 445) (*Tomaspis*); Metcalf, 1962: 9 (*Neaenus*). Type(s) sex?, 'Cuba' ('Museo Cubano'), type not examined. **Figs 815-816**. [No types were listed in the brief original description ('10mm. with white spots!'). Placed in *Neaenus* by Metcalf & Bruner (1944, Plate 58, fig. 9, Plate 59, fig 1), but judging by the female specimen they examined (here figured), this species does not belong in *Neaenus*.]
- platensis** Berg, 1883 (1884): 240 (146) (*Tomaspis*); Metcalf, 1961: 108. Syntypes 1♂, 1♀, Argentina (UNLP); 3 sex?, 'Uruguay' ('Royal Museum of Berlin'), not examined. **Figs 195, 310, 311**. [This species, currently placed in *Tomas-*

pis, has the aedeagus as in *Mahanarva*, but differs from both genera in its more elongate overall appearance with the postclypeus less swollen and in the shape of its male genitalia.]

***pulchralis** Valdés Ragués, 1910: 445 (*Tomaspis*); Metcalf, 1961: 108. Syntype ♀, Cuba (IESH). **Fig. 771.**

†rubripennis (Blanchard, 1845*: 221, Plate XXXI, fig. 7) (*Cercopis*); Jacobi, 1921: 41 (*Tomaspis*); Metcalf, 1961: 110. Type(s), Bolivia, 'Santa Cruz' (unknown). [From its original description (See Appendix 3) and figure this comes close to *Tomaspis furcata* (Germar) but it has less dark brown marking].

***tripars** (Walker, 1858a: 85) (*Monecphora*); Lallemant, 1912: 98 (*Tomaspis*); Metcalf, 1961: 113. Syntype ♀, Colombia (BMNH). **Fig. 667.** [Differs from *Tomaspis* by its postclypeus being less swollen, more angularly rounded in profile and with a longitudinal medial ridge.]

***venosa** (Walker, 1851: 687) (*Sphenorhina*); Lallemant, 1912: 98 (*Tomaspis*); Metcalf, 1961: 114. Holotype ♀, locality unknown (BMNH). **Fig. 701.** [Differs from *Tomaspis* in its strongly angular postclypeus in profile with a medial longitudinal ridge.]

6. APPENDICES

Appendix 1. Data from Walker's type specimens in the BMNH

Numbers in the first column refer to a number on most specimens, which refers to an entry in the BMNH register for that year (last column) e.g., for the first and second entry: '39 7 17 948' refers to the register entry 948 of the 17th July 1839 and '42 16' refers to entry 16 of the year 1842. Type label data and register information is given verbatim. In addition to these labels, one specimen of each type series has a museum green 'Walker' type disc and either a printed genus and species name label or hand-written species name label (referred to as h.w. in the following table), corresponding to the original name; these generic names are abbreviated here thus: *M.* = *Monecphora*, *S.* = *Sphenorhina*, *To.* = *Tomaspis*, *Tr.* = *Triecphora*. See also 'Material and methods – Walker types']

Reg. No.	Taxon	Type Label Data	Additional information from BMNH register
39 7 17 948	<i>M. solita</i> [syntype 'c'] (see also 43 86 and 'Unknown')		Presented by J. G. Children Esq. / Brasil
42 16	<i>S. notata</i>	no data	In exchange from Mr. Shuckard
43 86	<i>M. rubicunda</i>	Brazil	John Miers Esq., Brazil (Rio)
	<i>Tr. scita</i>	"	
	<i>M. solita</i> [syntypes 'a-b'] (see also 39 7 17 948 and 'Unknown')	"	
44 12	<i>To. divisa</i>	Brazil / Ent. Club	Presented by the Entomological Club
	<i>S. ocellata</i> (see also 44 78)	Ent. Club	
44 78	<i>M. flexuosa</i>	S. America	Presented by Edw. Doubleday Esq.
	<i>M. vittata</i>	"	
	<i>S. parallela</i>	"	
	<i>S. ocellata</i> (see also 44 12)	"	
45 56	<i>S. brevis</i>	Brazil	Presented by Mrs. J. P. G. Smith & J.P.G. Smith Esq.
45 67	<i>S. transiens</i>	Brazil	Presented by Edw. Doubleday Esq.

Reg. No.	Taxon	Type Label Data	Additional information from BMNH register
45 110	<i>M. basalis</i>	Jamaica	Purchased of Gosse
45 123	<i>Tr. contigua</i> <i>S. lineata</i> <i>S. bipustulata</i>	Honduras “ Para[!]	Purchased of Dyson, Honduras.
45 144	<i>S. stellata</i>	Para	Presented by Gordon Grahame Esq.
47 1	<i>M. demissa</i> <i>M. semifascia</i> <i>To. antica</i> (see also 47 24 and 47 52)	Venezuela “ “	Purchased from Dyson
47 25	<i>Tr. bella</i> <i>Phytozamia latifascia</i> <i>M. includens</i>	Columbia “ “	Purchased of Turner
47 24	<i>S. elliptica</i> <i>Tr. propinqua</i> <i>To. antica</i> (see also 47 1 and 47 52) <i>M. crocea</i>	Venezuela “ “ “	Purchased of Dyson
47 52	<i>To. antica</i> (see also 47 1 and 47 24)	Venezuela	Purchased of Dyson
47 78	<i>S. unifasciata</i> <i>S. venosa</i>	no data [Brazil in original publicaton.] no data	Purchased of Argent / Brasil
49 12	<i>M. radiata</i>	Venezuela	B[ough]t of Stevens / 3d each
50 2	<i>M. incompleta</i>	Para	Purchased of Stevens / selected from the collections of Mess ^{rs} Wallace and Bates.
51 42	<i>S. semivitreata</i> <i>S. cercopoides</i>	Para “	In exchange from Mr. Hewitson
53 27	<i>M. insignis</i> (see also 56 69)	Braz[il] Tapayos	Purchased from Stevens / Collected by Bates/ Brazil (Banks of the Rio Tapayos)
55 89	<i>To. distinguenda</i>	Venez[uel]a	Purchased from Stevens / Collected by Mr John William Birschell- who went from Kew to get plants

Reg. No.	Taxon	Type Label Data	Additional information from BMNH register
56 69	<i>M. insignis</i> (see also 53 27)	Ega	Purchased from Stevens / Collected by H W. Bates in the months of July, Aug. Sept. 1855 / Amazon (Ega on the R)
56 143	<i>M. postica</i> <i>S. bivittata</i> <i>S. cruciata</i> <i>To. similis</i> <i>S. simulans</i>	Mex[ico] “ “ “ “	Purchased of Cuming, collected by M. Sallé on & around the Volcano of Orizaba
57 43	<i>S. flammans</i> (see also 57 57)	Petropolis / H. Clark / Feb.y 1857	Presented by the Rev. Ham- let Clark / Brazil
57 50	<i>M. soligena</i>	Tejuca/ Jan.y 1857/ J. Gray	Presented by the Rev. Ham- let Clark / Brazil (Province of Rio).
57 57	<i>S. selecta</i> <i>M. soligena</i> <i>S. notabilis</i> <i>S. flammans</i> (see also 57 43)	Dec.r 1856 / J. Gray Petropolis / Feb.y 1857 / J. Gray Constancia / Jan.y 1857 / J. Gray Petropolis / H. Clark / Feb.y 1857	Presented by Rev. Hamlet Clark & J. Gray Esq.
57 125	[<i>S.</i>] <i>xanthomela</i> h.w.	Tunantins	Purchased of Stevens / Collected by Mr. Bates / Amazon (Tunantins).
58 132	[<i>S.</i>] <i>duodecimpunctata</i> h.w.	Cuenca [originally recorded from Paral]	Purchased of Cuming / Col- lected by Fraser / Cuenca (Province of Equador).
68 4	[<i>M.</i>] <i>integra</i> h.w. [<i>S.</i>] <i>scindens</i> h.w. [<i>S.</i>] <i>decernes</i> h.w. [<i>S.</i>] <i>pallifascia</i> h.w. [<i>S.</i>] <i>simplex</i> h.w. [<i>M.</i>] <i>tripars</i> h.w. [<i>S.</i>] <i>inclusa</i> h.w.	[?]nr. Video B[?] Amaz[on] ‘Col.[umbia] 1. / Guud’ “ “ “ “	Presented by W. Wilson Saunders Esq. / various [localities.]

Reg. No.	Taxon	Type Label Data	Additional information from BMNH register
68 4	[<i>M.</i>] <i>indentatus</i> h.w.	no data	Presented by W. Wilson
	[<i>M.</i>] <i>vacillans</i> h.w.	“	Saunders Esq. / various
	[<i>T.</i>] <i>diluta</i> h.w.	“	[localities.]
	[<i>S.</i>] <i>semifascia</i> h.w.	Para	
Unknown	<i>M. viridescens</i>	681	
	<i>S. bipars</i> h.w.	C. Bernal [?]	
	<i>S. quadripunctata</i> h.w.	‘S. 4 punctata / Walker Type / Brazil’ [not orig. label?]	
	<i>M. ornata</i>	580	
	<i>S. quadriguttata</i>	13 / a. – Honduras [cut from the original publication]	
	<i>S. suffusa</i>	568[?]	
	<i>M. solita</i> (see also 43 86 (syntypes a-b and 39 7 17 948 syntype c)	[syntypes ‘d-h’] 1831; 422 [+ type and name label]; 433; 574; Brazil	
	<i>M. bifascia</i>	576	
	<i>M. angusta</i>	George E. Doubleday	
	<i>S. rufivaria</i> (see also 68 4)	41	
	<i>M. inferens</i>	no data	
	<i>To. albifascia</i>	“	
	<i>S. frontalis</i> h.w.	“	
	<i>T. perfecta</i> h.w.	“	
	<i>S. assimilis</i>	“	
	<i>S. metallica</i>	1850	

Appendix 2. Valid species lacking a habitus figure in the current work

For the first twenty listed species a habitus and or genitalia figures are in the literature and of the remainder most lack known specimens (see ‘Annotated Checklist’ for details).

Aeneolamia flavilatera belenensis Guagliumi
Aeneolamia flavilatera guarici Guagliumi
Aeneolamia varia deltica Guagliumi
Aeneolamia varia falconiana Guagliumi
Aeneolamia varia sanctaebarae Guagliumi
Aeneolamia varia turenensis Guagliumi
Deois (*Deois*) *grandis* Sakakibara
Deois (*Pandysia*) *bergi* Costa & Sakakibara
Deois (*Pandysia*) *crenualata* Costa & Sakakibara
Ocoaxo costaricanus Nast
Prosapia chiapana Hamilton
Prosapia flavifascia (Metcalf & Bruner)
Prosapia fortior Hamilton
Prosapia hemelytra Hamilton
Prosapia ignifera Hamilton
Prosapia isobar Hamilton
Sphenorhina badia Carvalho & Sakakibara
Tomaspisina fuliginosa Nast
Tunaima brunneoaurantiaca Carvalho
Tomaspis rubripennis (Blanchard)

Baetkia stolli (Lallemand)
Hemitomaspis caligata jacobii (Lallemand)
Plagiophlebotena tigrina Schmidt
Sphenorhina sericea Lallemand
Tomaspis crocea (Walker)
Zuata pica secta (Lallemand)
Zuata pica truncata (Lallemand)
Sphenorhina kuhlkatzi (Jacobi)
Mahanarva petrificata (Germar)

Appendix 3. Original species descriptions

Some of the original descriptions consulted during the course of this work are reproduced below together with translations (except Latin in most cases) where applicable.

Blanchard, 1845

Cercopis rubripennis Blanchard.

"*Ruber; capite postice nigro maculato; elytris rubris, linea nigra; abdomine rubro, nigro fasciato; pedibus nigris. Long. 18 mill.; enverg. 42 mill. De la province de Santa-Cruz (Bolivia)*".

Translation: Red, head posteriorly with a black spot; elytra red, with black line; abdomen red with black band; legs black.

The 18mm length measurement would appear to be from the apex of the head to the apex of the tegmen at rest. This is the case with regards the fulgoroid species known from extant types described in the same publication (see Bourgoin, 1991). The small original colour figure given shows the marking on the vertex not as the described spot but with the entire posterior region of the vertex black and the black marking extended forward both against the eye and medially, the latter triangular-shaped. Also, the red tegmen have only a faint dark line adjacent the costal margin.

Fabricius, 1775

p. 688. "CERCOPIS. Os rostro inflexo. *Labium* abbreviatum, truncatum, emarginatum. *Antennae* suboculis insertae".

p. 688.

Cercopis cruentata Fabricius (= *Sphenorhina rubra* (Linnaeus))

"*cruentata*. 3. C. rufa, elytris nigris: fasciis duabus flavis.

Habitat Surinami. Drury.

Statura et magnitudo praecedentis [2. sanguinolenta]. Caput et thorax laevia, rufa, immaculate. Scutellum triangulare, nigrum, apice flavum. Elytra rotundata, nigra, fasciis duabus latis, flavis".

Fabricius, 1787

p.273.

"CERCOPIS. Os labio abbreviato, truncate, emarginato. *Antennae* filiformes suboculis insertae."

***Typeschata marginata* (Fabricius)**

“*marginata*. 2. C. atra, elytris [-?] vitta marginali sanguinea.

Habitat in America meridionali Mus. Dom. Hunter.

Magna. Caput atrum macula frontali sanguinea. Thorax ater linea media margineque sanguineis. Scutellum triangulum, acutum, atrum linea media sanguinea. Elytra [-?] atra vitta ad marginem exteriorem et interiorem sanguineis, quae antice [-?]. Abdomen atrum ano sanguineo. Pedes rubric geniculis nigris”.

p. 274

***Deois (Pandysia) schach* (Fabricius)**

“*schach*. 5. C. nigra, elytris fascis: fascia interrupta sanguinea.

Habitat in America septentrionali Mus. Dr. Hunter.

Statura praecedentris. Caput et thorax nigra, immaculate. Scutellum nigrum margine sanguineo. Elytra fusca puncto baseos fasciaque postica in medio interrupta sanguineis. Alae hyalinae. Corpus nigrum abdominis basi sanguineo. Pedes nigri.”

***Aeneolamia varia* (Fabricius)**

“*varia*. 8. C. capite thoraceque virescentibus, elytris sulcis: maculis duabus baseos strigaeque postica flavis.

Habitat Cajenae Dom. v. Rohr.

Caput et thorax obscure viridia, immaculate. Elytra fusca maculis duabus oblongis baseos strigaeque postica flavis. Corpus atrum abdomine rufo margine atro.”

Fabricius, 1794

p. 45

In footnote to *Cercopis* section: “*Cercopis* corpus parvum,...fronte elevata, gibba, fulcata....”

p. 48.

***Homalogrypota coccinea* (Fabricius)**

“*coccinea* 4. C. rubra immaculate tibiae posticae unidentatis.

Habitat in Americae meridionalis Insulis.

Major C. sanguinolenta, tota rubra. Alae albae, apice fuscae. Pedes rubric tarsis fuscis. Tibiae posticae ante apicem dente valido, acuto.”

Fabricius, 1803 (*Cercopis* in most part)

p. 88.

“13. CERCOPIS. Os labio abbreviato, truncate, emarginato. *Antennae*: filiformes: articulo primo crasfiori subcapitis margine prominulo insertae.”

p. 89.

***Schistogonia sanguinea* (Fabricius)**

“sanguinea. 4. C. sanguinea elytris macula media margineque postico atris.

Habitat in America meridionali. Dom. Smidt. Mus. Dom. Lund.

Maxima. Caput et thorax rubra, immaculate. Elytra sanguinea macula magna media fusca margineque postico atris. Pedes atri femoribus sanguineus.”

p. 90-91.

***Mahanarva tristis* (Fabricius)**

“*tristis*. 11. C. nigra elytris punctis ferrugineis.

Stoll. Cicad. Tab. 16. fig. 88.

Habitat in America meridionali. Dom. Smidt. Mus. Dom. De Sehestedt.

Statura praecedentium. Caput atrum linea media elevate. Thorax et scutellum nigra, interdum ferrugineo nitidula. Elytra atra punctis aut maculis rufis nunc pluribus, nunc paucioribus. Corpus atrum.”

p. 91.

***Ischnorhina ephippium* (Fabricius)**

“*ephippium*. 13. C. sanguinea elytris macula communi dorsali fulca.

Habitat in America meridionali. Dom. Smidt. Mus. Dom. Lund.

Statura C. rubrae paullo major. Caput rubrum, impressum. Thorax ruber antice punctis duobus impressis. Elytra rufa macula magna, communi, in medio, fusca. Corpus rufum abdomine tibiisque atris.”

p. 94.

***Maxanotonia lineola* (Fabricius)**

“*lineola*. 33. C. nigra thorace antice elytris lineolis duabus baseos fasciaque media flavis.

Habitat in America meridionali. Do. Smidt. Mus. Dom. De Sehestedt.

Statura et affinitas C. variae. Caput atrum macula frontali fulva. Thorax ater margine antico falvo. Scutellum impressum. Elytra laevis, nigra basi lineolis duabus, altera ad marginem tennioem, obliquis flavis et pone has fascia flava. Abdomen nigrum margine sanguineo. Pedes postici pallidi.”

Germar, 1821 (*Cercopis* in most part)

The line measurement given is presumed to be a Parisian line (= 2.266mm) as this terminology is used for another species described by Germar i.e. *sororia*.

p.39.

***Cercopis haematina* Germar = *Sphenoclypeana haematina* (Germar)**

“1) *C. haematina* m. fronte compressa, angulata, atra, collari elytrisque sanguineis, tibiis posticis unidentatis. Habitat in Brasilia.”

“Beinahe Zoll lang, tiefschwarz. Die Stirn blutroth mit schwarzer scharfer Längskante. Das Kopfschild schwarz, die Augen grau. Der Halskragen blutroth, mit stark aufgeworfenem Seitenrande und zwei tiefen, schwärzlich angelaufenen Vordergruben. Das Schildchen schwarz, mit röthlicher Spitze. Die Deckschilde blutroth, Vorder- und Hinterrand mit schmalem schwarzen Saume. Die Flügel schwarz. Die Hinterschienen mit einem Dorne unter der Mitte.”

Translation from German:

Almost an inch long, black. The frons blood red with sharp black longitudinal carina. The head black, the eyes grey. The pronotum blood red, with strongly upturned lateral margin and two deep blackish anterior pits. The scutellum black with reddish tip. The elytra blood red, fore and hind margin with narrow black edge. The wings black. The metatibiae with a spine under the middle.

p. 40-41

***Neosphenorhina festa* (Germar)**

“3) *C. festa* m. fronte compressa, angulata, flava, antennis oculis tibiisque nigris, elytris rufescentibus, vittis duabus abbreviatis margineque posteriore nigris. Habitat in Brasilia.”

“Einen halben Zoll lang und verhältnissmässig weit schmaler gebaut, als die übrigen Arten. Der Kopf ist rothgelb, Augen, Fühler und die Stirn da, wo sie die Spitze des Scheitels macht, schwarz. Das Halsschild ist rothgelb, vorn mit zwei eingedrückten Gruben, und schmal abgesetztem Seitenrande. Die Deckschilde sind roth, mit zwei oben und unten abgekürzten schmalen schwarzen Längsbinden, eine neben dem Innen- die andere neben dem Aussenrande. Der Hinterrand ist schmal schwarz gesäumt. Die Flügel sind grau, mit gelber Randader. Der Körper auf der Unterseite ist rothgelb, der Rüssel, ein Fleck an der Wurzel der mittlern Beine auf der Brust, Schenkelspitzen, Schienen und Füsse schwarz.”

Translation from German:

Half an inch long and considerably narrower than other species. The head is reddish yellow. Eyes, antennae and the frons, in the place where it forms the point of the vertex, black. The pronotum reddish yellow, anteriorly with two pits, and narrowly defined lateral margin. The elytra are red, with two incomplete narrow black longitudinal bands, one next to inner margin the other next to the outer margin. The posterior margin has a narrow black edge. The wings are grey with yellow marginal vein. The body on the underside is reddish yellow, the proboscis, a spot on the thorax at the base of the middle legs, tip of the femur, tibiae and tarsi black.

p. 41.

***Sphenorhina rubra sororia* (Germar)**

“4) *C. sororia* m. fronte compressa, angulata, rubra, elytris atris: fasciis duabus latis, integris, flavis. Habitat in St. Paulo Brasiliae.”

“Fast 7 par. Lin. lang, jedes Deckschild 2 Lin. breit, dunkel – blutroth, nur die Spitze der Klauen schwarz, Fühler roth, Schildchen braunroth mit gelber Spitze. Die Deckschilde tiefschwarz, mit zwei breiten, geraden, zitrongelben Querbinden, eine vor, die andere hinter der Mitte. Die Flügel rauchgrau, nach der Spitze zu dunkler. Der Hinterleib in der Mitte bisweilen schwärzlich. Die hintersten Schienen mit einem scharfen Dorne unter der Mitte.”

Translation from German:

Almost 7 Parisian lines long [15.8mm], each forewing 2 lines wide, dark blood red, only the tip of the [tarsal] claws black, antennae red, scutellum brown-red with yellow apex. The forewings deep black with two broad, straight, lemon yellow transverse bands, one before and one behind the middle. The wings smokey grey, towards the apex darker. The abdomen in the middle sometimes blackish. The metatibiae with a sharp spine under the middle.

p. 42.

***Mazantonia punctigera* (Germar)**

“8) *C. punctigera* Hffg. Fronte clypeoque carinatis, fusca, collaris margine antico, elytris striga basilari maculisque quarnor fulvis. Habitat in Brasilia.”

“ $3\frac{3}{4}$ Lin. lang, oben braungrau, unten schmutzig gelb. Die Stirn gelb, da wo sie an den Scheitel anstösst schwarz, auf der Oberseite, in der Ausrandung des Scheitels wieder gelb. Der Halskragen grob punktirt, mit aufgeworfenem Seitenrande und zwei tiefen breiten Vordergruben, braungrau, mit gelbem Vorderrande. Das Schildchen braun.

Die Deckschilde graubraun, ein schmaler Streif von der Schulter nach dem Innenrande bis zur Schildchenspitze, ein zweiter im Mittelraume, und zwei hinter der Mitte an den entgegengesetzten Rändern rothgelb. Die Flügel durchsichtig mit gelben Adern. Die Vorderbeine schwarz, die Schenkel in der Mitte gelb, die hintersten Beine gelb, die Schienen mit zwei scharfen Zähnen.”

Translation from German:

3¾ Lines long [8.5mm], above brownish grey, below dirty yellow. The frons yellow, where it meets the vertex black, on the upper side, in the imargination of the vertex again yellow. The pronotum coarsely punctured, with raised lateral margin and two deep and broad anterior pits, brownish grey with yellow anterior margin. The scutellum brown. The elytra grey-brown, a narrow stripe from the shoulder towards the inner margin and to the tip of the scutellum, a small spot on the anterior margin not far from the base, a second one in the middle area and two behind the middle on the opposite margins reddish yellow. The wings are transparent with yellow veins. The forelegs black, the femora in the middle yellow, the hindlegs yellow, the tibiae with two sharp teeth.

pp. 42-43.

Cercopis colon Germar = *Aeneolamia colon*

“9) *C. colon* Hffg. [Germar] fronte convexa, atra, abdomen sanguineo, elytris fascia punctisque, duobus opposites fulvis. Habitat in Brasilia.”

“2½ Lin. lang. Schwarz, Hinterleib unten und die hintersten Schenkel blutroth. Auf dem Scheitel zwei tief eingedrückte Längsstriche. Die Stirn mit einer über das Kopfschild laufenden Kante. Der Halskragen mit flachen Seitenrändern, die gewöhnlichen Vordergruben sehr flach. Auf den Deckschilden eine schmale Queerbinde in der Mitte und zwei an den Rändern einander gegenüberstehende Flecke darhinter rothgelb. Die Flügel rauchgrau. Die hintersten Schienen zweidornig.”

Translation from German:

“2½ lines long [5.5mm].

Black, abdomen beneath and posterior femur blood red. On the vertex two deeply impressed longitudinal lines. The frons with a carina that runs dorsally over the head. The pronotum with shallow lateral margins, the usual anterior pits very shallow. On the elytra a narrow transverse band in the middle and two spots on the margin behind transverse band and opposite each other reddish yellow. The wings smokey grey. The posterior tibiae with two spines”.

pp. 45-46

***Cercopis petrificata* Germar** = ?*Mahanarva petrificata* (Germar)

"16) *C. petrificata* m. fronte convexa, grisea, pubescens, elytris maculis duabus opposites albis, abdomine subtus aeneo. Habitat in Brasilia."

"Sechs Lin. lang. Der Halskragen an den Seiten schmal gerandet, statt der gewöhnlichen Gruben das ganze Vorderfeld eingedrückt. Die Deckschilde flach dachförmig, im Spitzfelde vielfach gegittert. Die hintersten Schienen zweimal gezahnt. Die Farbe oben braungrau, mit niederliegenden Härchen dünn bedeckt, das Schildchen dunkler, die Randader der Deckschilde lichter, zwei an den Rändern der Deckschilde vor der Spitze einander gegenüberstehende Flecke gelbweiss. Die Flügel grau. Die Unterseite gelbbraun, der Hinterleib dunkel metallisch grün, mit gelben Genitalien, auch Schenkel, Schienen und Stirn stellenweis metallisch grünlich angelaufen."

Translation from German:

"6 lines long [13.8mm]. The pronotum on the sides with narrow margin, instead of the usual pits the entire anterior part depressed. The elytra shallowly roof like, in the apical area strongly reticulated. The metatibia with two teeth. The colour above brownish grey, thinly covered with fine, depressed hair, the scutellum darker, the marginal vein of the elytra lighter, two spots on the margin of elytra before the apex, opposite each other, yellowish white. The wings grey. The under-side yellowish brown, the abdomen dark metallic green, with yellow genitalia, also coxae, tibiae and frons in places with metallic greenish sheen."

p. 46.

***Deois terrea* (Germar)**

"17) *C. terrea* m. fronte convexa, fusca, grifeo subpubescens, elytris dilutionibus, tarsis posticis apice atris.

Habitat in Brasilia."

"Vier Linien lang. Der Scheitel mit zwei tief eingestochenen Punkten am Hinterrande. Der Halskragen an den Seiten schmal und flach gerandet, vorn die gewöhnlichen Gruben, die Oberfläche punktirt und queerrunzlich, mit schwachen Spuren einer erhabenen Mittellinie. Das Schildchen flach eingedrückt. Die Deckschilde dicht und fein punkirt, im Spitzfelde vielfach gegittert. Die hintersten Schienen mit zwei scharfen Dornen besetzt. Die Farbe graubraun, oben mit gelblichen Härchen dünn bedeckt, Augen schwarz, Stirn und Scheitel etwas grünlich metallisch angelaufen, Deckschilde gelbbraun, ungefleckt, Flügel wasserhell. Die

Unterseite dunkel gelbbraun, Schenkel schwärzlich angelaufen, Vordertarsen braunschwarz, die Spitzen der hintersten Schienen, die Spitze des ersten Tarsengliedes und die zwei andern Glieder tiefschwarz.”

Translation from German:

4 lines long [9mm]. The vertex with two deep punctures on the posterior margin. The pronotum laterally narrow and with a flat margin, anteriorly the usual pits, the surface punctured and with transverse wrinkles, with weak traces of a raised midline. The scutellum shallowly impressed. The forewings densely and finely punctured, on the apex strongly reticulate. The hind tibiae set with two sharp spines. The colour grey brown, dorsally covered sparsely with yellow hairs, eyes black, frons and vertex with a green metallic tinge, elytra yellowish brown, without maculation, wings clear. The underside dark yellowish brown, femora blackish, fore tarsi blackish brown, the tips of the hind tibiae and the tips of the first tarsal joint and the two subsequent joints deep black.

Jacobi, 1908

p.214

***Tomaspis (Sphenorhina) kuhlkatzi* Jacobi**

“Kohlsschwarz, mit schwachem Glanze; Spitze der Scutellums und zwei aus schmalen Flecken gebildete krumme Querbinden der Deckflügel – in der üblichen Lage – ziegelrot. Flügel dunkel graubraun. In der Körperform sehr ähnlich *T. lucifer* JAC., aber Pronotum und Deckflügel gröber punktiert; ersteres ohne Kiel und die Ränder kaum aufgebogen; Stirn bis auf einen mittleren spitzen Kegel, der die Umbiegung bezeichnet, ganz glatt. Deckflügel im Costalrande etwas gleichmäßiger gebogen.

Long. c. tegm. 17.5 mm; Lat. pron. 6.5 mm.

Hab.: Colombia; Antioquia (WALLIS: Mus. Berlin, Typus!).

Dem Hemipterologen des Berliner Museums, Herrn Dr. TH. KUHLGATZ, gewidmet.”

Translation from German:

Jet black, with weak sheen; apex of the scutellum and two irregular transverse bands formed from small spots – in the usual position – brick red. Wings dark greyish brown. In the body shape very similar to *T. lucifer* Jac. but pronotum and elytra more coarsely punctured. The former without keel and the margins barely raised upwards; frons completely smooth except for a medial pointed cone that indicates the ... ? (“Umbiegung”). Elytra in the costal margin a little more evenly curved.”

LePeletier & Serville, 1825

The line measurement given is presumed to be a Parisian line (= 2.266mm).

p.605.

Cercopis collaris* LePeletier & Serville = *Tomaspis furcata

“2. CERCOPIS à collier, *C. collaris*.

Cercopis nigra, capitis subtùs et anticè thoracisque suprà rubrorum macula communi nigrâ; elytris basi et ad apicem rubris, nigro maculatis, in medio testacies: pedibus nigris.

Longueur 11 lig. Corps noir en dessous; tête d'un rouge sanguine avec le vertex noir. Corselet d'un rouge sanguine en dessus ainsi que les bords latéraux en dessous; le milieu de sa partie antérieure portant une tache noire, en carré-long transversal qui se reunit à la tache de la tête. Base des élytres d'un rouge sanguine, leur milieu testacé; leur bord postérieur d'un rouge sanguine bordé de noir; cette couleur s'élargissant de chaque côté, en remontant vers le milieu de chaque élytre; vers la base de chacune d'elles on voit deux lignes noires se réunissant un peu par leur bout supérieur: écusson et pattes, noirs, les quatre cuisses antérieures plus ou moins rouges en dessous.

Femelle. Du Brésil.”

Translation from French:

Length 11 [French] lines. Body black below; head red with the vertex black. Pronotum red above as well as the lateral border below; the middle of the anterior part with a black spot, oblong transverse which unites with the head spot. Base of tegmen red, their middle testaceous; their posterior border red bordered with black; this colour enlarged on each side as it goes towards the middle of each tegmen; towards the base of each one there are two black lines reunited a little by their upper ends: Scutellum and legs, black, the four anterior legs more or less red below.

Female. From Brazil.

***Neomonecphora apicalis* (Le Peletier & Serville)**

“5. CERCOPIS apicale, *C. apicalis*.

Cercopis subtùs nigra, suprà sanguinea, elytrorum puncto ad medium apicibusque latis, nigris.

Longuer 7 lig. Tête d'un rouge sanguine avec le bec et la partie qui l'avoisine, noirs. Abdomen, pattes et dessous du corselet, noirs. Le dessus de celui-ci et ses bords latéraux en dessous, d'un rouge sanguine. Ecusson de cette couleur, ainsi que les deux tiers antérieurs des élytres; sur le milieu de cette partie rouge est un point noir, assez

gros; le tiers postérieur des élytres est également noir, et la ligne qui sépare les deux couleurs rouge et noire, est un peu ondulée.

Femelle. De Cayenne.”

Translation from French:

Length: 7 lines. Head red with the rostrum and adjacent areas black. Abdomen, legs and below pronotum black. Above this area and ventral lateral border is blood red. Scutellum of same colour as well as anterior two thirds of tegmen; in the middle of this red area is a black spot, quite large; the posterior one third of tegmen is equally black, and the line which separates the two is a little undulated.

Female. Cayenne.

***Maxantonia quadrifasciata* (Le Peletier & Serville)**

“8. CERCOPIS quadrifasciée, *C. quadrifasciata*.

Cercopis subtus testacea; supra nigra fasciis quatuor pallidè luteis, duobus posticis valdè interruptis.

Longueur 4 lig. ½. Abdomen, dessous du corselet et de la tête, partie antérieure de celle-ci d'un jaune rougeâtre, peut-être sanguine dans l'insecte vivant; vertex et sternum noirs. Corselet noir en dessus, ayant à sa base une bande transverse jaune. Ecusson et élytres de couleur noire, leur base commune avec une bande jaune qui n'atteint pas les angles juméraux; deux autres bandes de meme couleur sur les élytres, fort interrompues dans la partie dorsale, l'une vers le milieu de l'élytre, l'autre un peu avant son extrémité. Pattes testacies, genoux et tarses noirs.

Mâle. Du Brésil.”

Translation from French:

Length 4 ½ lines = 10.3mm. Abdomen, below the pronotum and head, anterior part of the head of a yellow red, perhaps blood red in living insect; vertex and sternum black. Pronotum above black having at its base a trasverse yellow band. Scutellum and tegmen black, their common base with a yellow band not reaching humeral angles; two other bands of the same colour on the tegmen, strongly interrupted in dorsal part, one interrupted towards the middle of the tegmen, and the other a little before its apex. Legs testaceous, knees and tarsi black. Male. From Brazil.

p.606

***Mahanarva liturata* (Le Peletier & Serville)**

“9. CERCOPIS liturée, *C. liturata*.

Cercopis atra; elytrorum lineolis longitudinalibus irregularibus, thoracis subtus maculis coxarumque et femorum apice sanguineis : capitis parte inferiori cuneiformi.

Longueur 5 lig. $\frac{1}{2}$. D'un noir mat. Dessous du corselet ayant des taches d'un rouge sanguine; extrémité des hanches et des jambes de cette meme couleur, ainsi que plusieurs lignes longitudinales irrégulières placées sur les élytres; partie inférieure de la tête amincie en coin. (L'abdomen manqué.)

Du Brésil."

Translation from French:

Length $5\frac{1}{2}$ lines = 12.6mm. Matt black. Below pronotum having blood red spots; extremities of haunches of legs of this same colour, as well as several long irregular bands on the tegmen; lower part of head, narrower at corner. (The abdomen missing.) From Brazil.

***Monecphora cingulata* (Le Peletier & Serville)**

"10. CERCOPIS ceinturée, *C. cingulata*.

Cercopis flava; fasciâ angustatâ, elytris et scutelli apice communi nigrâ.

Longueur 4 lig. $\frac{1}{2}$. D'un assez beau jaune. Elytres portant une bande étroite noire au tiers de leur longueur, dans laquelle se trouve prise l'extrémité de l'écusson qui est aussi noire. Pattes jaunes; jambes antérieures et leurs tarses, noirs; les quatre postérieures ayant leur extrémité noire ainsi que celle des tarses. Cuisses intermediaries de cette meme couleur à l'extrémité.

Mâle. De l'Amérique méridionale."

Translation from French:

Length $4\frac{1}{2}$ lines = 10.3mm. Pretty yellow. Tegmen have a narrow black band at one third length, and which we find on the apex of the scutellum which is also black. Legs yellow; anterior legs and their tarsi, black; the four posterior legs having their extremities black as well as the tarsi. Median femora of this same colour as apex.

Male. South America.

***Cercopis humeralis* Le Peletier & Serville = *Deois* (*Pandysia*) *schach*.**

11. CERCOPIS humérale, *C. humeralis*.

Cercopis atra; thorace subtus pedibusque sanguineis fusco mixtis : elytrorum lineolâ humerali fasciâque submaculari ante apicem sanguineis.

Longueur 3 lig. $\frac{1}{2}$. D'un noir mat. Dessous du corselet et pattes d'un rouge sanguine mêlé de noir. Elytres ayant une petite ligne humérale et une bande au-dessous des deux tiers de leur longueur, d'un rouge sanguine; cette bande compose de taches, dont plusieurs se réunissent.

Femelle. Du Brésil.

Translation from French:

Length $3\frac{1}{2}$ lines = 7.5mm. Matt black. Below pronotum and legs blood red mixed with black. Tegmen with a small line at humeral and a band below two thirds their length, of blood red; this band composed of spots of which several join.

Female. From Brazil.

Cercopis lanio* LePeletier & Serville = ?*Tropidorhinella lanio

“12. CERCOPIS boucher, *C. lanio*.

Cercopis nigra; elytrorum basi et fasciâ irregulari ad marginem et ad suturam dilatâtâ sanguineis : rostro et capitis parte inferâluteo-lividis.

Longueur 3 lig. Noire. Bec et partie inférieure de la tête d'un jaune livide; côtés du corselet en dessous et anus d'un jaune rougeâtre; base des élytres d'un rouge sanguine ainsi qu'une bande transversale irrégulière placée à peu près aux deux tiers des élytres, s'élargissant au bord extérieur et vers la suture. Pattes toutes noires. Mâle.”

Translation from French:

Length 3 lines [approximately 6.5mm]. Black. The rostrum and lower part of head pale yellow; sides of thorax below and anus of a reddish yellow; base of the tegmen blood red as well as an irregular transverse band placed at about two thirds of tegmen, widening at external margin and towards the suture. Legs all black. Male. From Brazil.

p.606-607.

***Baetkia compressa* (Le Peletier & Serville)**

“13. CERCOPIS face comprimée, *C. compressa*.

Cercopis rubro sanguinea; rostro, elytrorum margine postico pedibusque quatuor anticis et posticorum apice nigris : capitis parte inferiori cultrato-compressâ.

Longueur 6 lig. D'un rouge sanguine; bord postérieur des élytres et bec de couleur noire ainsi que les quatre pattes antérieures, l'extrémité des jambes postérieures et leurs tarses. Le corselet est un peu plus foncé que le reste du corps et peut quelquefois paraître noir.

Mâle. De Cayenne.”

Translation from French:

Length 6 lines = 13.8mm. Blood red; posterior border of tegmen and mouth parts black as well as four anterior feet, and the apex of posterior legs and tarsi. The pronotum a little bit more darker than the rest of body and can sometimes appear black.

Male. From Cayenne.

Nast, 1951b (1950)

p. 73

Tomaspisina fuliginosa Nast

"Head and thorax blackish-brown; testaceous are: anterolateral borders of pronotum near the eyes, a tubercle at the base of postclypeus and parts of prosternum adjacent to the coxae. Basal joints of antennae brown, the thickened base of the bristle testaceous. Intermediate legs brown with a paler streak along the posterior margin of femur. In the hind legs coxae and trochanter brown, femur striped brownish and yellowish; tibia pale yellow with its base brown and with the thorns dark brown; tarsi yellowish with brown spines. Abdomen above brownish-black, the segments bordered with yellow on their posterior and lateral sides; pleurae yellow. Abdomen beneath blackish-brown, the segments bordered on their posterior margins with testaceous-yellow. The genital segment brownish-black. Forewing pale testaceous with brown veins. Genitalia as figured. Total length 11.5mm. Holotype male: Peru, coll. Muche (B.M.)."

Walker, 1851

p.678

Tomaspis crocea (Walker). The type of this species is missing most of its body parts. "15. MONECPHORA CROCEA.

Lutea; abdomen basi, pectus et pedes fulva; femora antica nigra vittata; alae anticae fuscae fulvo univittatae luteo bifasciatae.

Luteous shining: head and chest finely punctured: head above concave on each side; face very convex, slightly compressed, with a row of indistinct parallel slightly oblique cross ridges on each side of the keel: tip of the mouth black: abdomen at the base, breast, and legs tawny; fore-thighs striped with black; tips of the tarsi black: forewings brown, with two broad luteous bands, whose edges are whitish; a short tawny stripe along the fore border from the base: hind wings almost colourless; veins tawny. Length of the body 3 lines; of the wings 8 lines a. Venezuela. From Mr. Stevens' collection."

[Length = approximately 9mm from apex of head to apex of wing in rest position, compared to other species described by Walker with the same 'line' measurement, see 'Material and methods – Walker types'].

7. SUMMARY

Review of paper

The New World cercopid spittle bugs, ‘cigarrinhas das pastagens e da cana de açúcar’ (‘little cicadas of the pastures and sugar cane’) (Hemiptera: Cercopidae) are reviewed, with all taxa included in the single subfamily Ischnorhinae Schmidt, 1920 (=Tomaspidinae Schmidt, 1922a, sensu Fennah, 1968). Details of each species-group taxon are given in an annotated check-list and figures or references to figures are provided for most species. The figures provided include line drawings of the male genitalia and colour habitus figures, the latter (in most cases) from the types examined. Lectotypes are designated for *Sphenorhina pallida* Lallemand, *Tapaiuna pehlkei* (Schmidt) and *Tropidorrhinella inflata* (Jacobi), and a neotype is designated for *Sphenorhina rubra* (Linnaeus).

Synopsis of classification and new nomenclatorial changes

(see check-list for further details)

Aeneolamia	lepidior (Fowler)
albofasciata (Lallemand)	reducta (Lallemand)
<i>occidentalis</i> Fennah	ssp. montana Fennah
colon (Germar). Comb. nov.	sanguinipaga (Lallemand). Comb. nov.
<i>selecta</i> (Walker). Syn. nov.	
<i>transversa</i> Lallemand. Syn. nov.	varia (Fabricius)
contigua (Walker)	ssp. bodkini (Williams)
<i>pictipennis</i> Stål	ssp. bogotensis (Distant)
ssp. campecheana Fennah	ssp. campestris Fennah
ssp. jugata (Fowler)	ssp. carmodyi (Kershaw)
ssp. postica (Walker)	ssp. costata Fennah
ssp. sanctaerosae Fennah	ssp. deltica Guagliumi
ssp. turrialbae Fennah	ssp. demissa (Walker)
flavilatera (Urich)	ssp. deusta Fennah
ssp. belenensis Guagliumi	ssp. falconiana Guagliumi
ssp. caripensis Fennah	ssp. fallax Fennah
ssp. funebris Fennah	ssp. lugens Fennah
ssp. guarici Guagliumi	ssp. nigrescens Fennah
ssp. mesae Fennah	ssp. pallidior Fennah
ssp. talmana Fennah	ssp. paspali Fennah

- ssp. *propinqua* (Walker)
 ssp. *saccharina* (Distant)
 saccharina var. *distanti* Lallemand
 saccharina var. *tricolor* Lallemand
 ssp. *sanctaebabarbarae* Guagliumi
 ssp. *semifascia* Walker
 ssp. *sontica* Fennah
 ssp. *sordida* Fennah
 ssp. *tomentosa* Fennah
 ssp. *turenensis* Guagliumi
- Aracamunia
 dimorpha (Distant)
- Baetkia
 compressa (Le Peletier & Serville)
 maroniensis Lallemand
 stolli (Lallemand)
- Bradypteroscarta
 infusca Lallemand
- Carachata
 dimorphica Carvalho & Sakakibara
- Carpentiera
 insignis Lallemand
- Catrimania
 insignis (Walker).
 longula (Lallemand)
 semivitrea (Walker). **Comb. nov.**
- Chinana
 argentina Lallemand
- Choconta
 circulata (Guérin-Méneville)
 comitata (Melichar). **Comb. nov.**
 elliptica (Walker). **Status revalidated**
 juno (Distant)
 lemoulti Lallemand. **Syn. nov.**
 destituta Nast. **Syn. nov.**
 peruana (Lallemand)
 jaczewskii Nast. **Syn. nov.**
- Deois
 Deois (Acanthodeois)
- flavopicta* (Stål)
 multicolor (Distant)
 incompleta (Walker)
 diluta Walker
- Deois* (Deois)
 correntina (Berg)
 grandis Sakakibara
 knighti Carvalho & Webb
 knoblauchii (Berg)
 moralis (China & Myers)
 mourei Cavichioli & Sakakibara
 piraporae Sakakibara
 pseudoflavopicta (Lallemand)
 similis Sakakibara
 rubropicta Sakakibara
 sempunctata Carvalho & Webb
 spinulata Costa & Sakakibara
 terrea (Germar)
 perezii Berg
 argentina Berg
 uniformis (Distant)
- Deois* (Fennahia)
 coerulea (Lallemand)
 flexuosa (Walker)
 viridescens Walker
 vacillans Walker
- Deois* (Pandysia)
 bergi Costa & Sakakibara
 crenialata Costa & Sakakibara
 constricta Carvalho & Webb
 schach (Fabricius)
 humeralis Le Peletier & Serville
 ssp. *solita* (Walker)
 transiens (Walker). **Status revalidated**
- Deoisella
 fasciata Costa & Sakakibara
 picklei (China & Myers)
- Ferorhinella
 brevis (Walker)

Hemiplagiophlebotena

multicolor Lallemand

Hemitomaspis

caligata (Jacobi)

ssp. jacobii (Lallemand)

ignobilis (Fowler). **Comb. nov.**

minuscula (Jacobi)

Homalogrypota

cinnabarina Schmidt

coccinea (Fabricius)

interrupta Schmidt

ssp. hyalinipennis Schmidt. **Stat. nov.**

Huaina

inca (Guérin-Méneville)

Hyalotomaspis

clarissa (Jacobi)

Hyboscarta

andina Schmidt

melichari Lallemand

rubrica Jacobi

teres Jacobi

Iphirhina

discontinua (Fowler)

limbata (Stål)

limbata Fallou*limbata* Fowler

perfecta (Walker)

quota (Distant)

sepulchralis (Stål). **Comb. nov.**

Ischnorhina

ephippium (Fabricius)

quadrimelasma Costes & Webb

surinamensis Schmidt

unifascia (Walker)

bipars Schmidt

williamsi Lallemand

Isozulia

aenea (Melichar). **Comb. nov.**

astralis (Distant).

ssp. flamen Fennah

christenseni (Lallemand)

ssp. jujuyana Fennah

cyanescens (Lallemand)

minor Fennah

soluta (Melichar). **Comb. nov.**ssp. trivittata (Jacobi). **Stat. nov.,****Comb. nov.***charaxus* Fennah. **Syn. nov.**

Kanaima

dubia Stancik & Cavichioli

fluvialis (Lallemand)

ssp. bipunctata (Lallemand)

ssp. lateralis (Lallemand)

fortunata (Lallemand). **Status revali-****dated, comb. nov.**

katzensteinii (Berg)

radiata (Walker)

vittata (Walker)

Korobona

Horvathiella Lallemand*Horvathiana* Metcalf

lineata Distant

conspicua Distant*rubrovittata* Lallemand

Laccogrypota

amazonensis Lallemand

atrocoerulea Schmidt

basirufa Schmidt

bogotana (Distant)

invalida Jacobi. **Syn. nov.**

consul (Jacobi)

ssp. indistincta (Lallemand)

ssp. jacobii (Lallemand)

costalis Schmidt

dentata Nast

gloriosa (Jacobi). **Comb. nov.**

grandis (Distant)

laqueus Breddin

- inca Schmidt
 partita Jacobi
 praelata (Jacobi)
 praetor (Jacobi)
 pulchra Schmidt
 quadrilineata Costes & Webb
 trimaculata Schmidt
 valida (Distant)
 volxemi Lallemand
 xanthomela (Walker)
- Lujana
- multicolor Lallemand
- Mahanarva
- Luederwaldtia* Schmidt
 Funkhouseria Lallemand
 Delassor Fennah
- Mahanarva* (Ipiranga) Fennah
- aguirrei (Berg)
 bahiaensis Carvalho & Webb
 indentata (Walker). **Stat. nov.**
 integra (Walker). **Stat. nov.**
 moreirae Lallemand. **Syn. nov.**
 rubicunda (Walker)
- Mahanarva* (Mahanarva) Distant
- albifascia (Walker). **Comb. nov.**
 andigena (Jacobi)
 bicolor (Signoret). **Comb. nov.**
 centurio Jacobi. **Syn. nov.**
 bipars (Walker)
 bobischi (Jacobi). **Comb. nov.**
 chilensis (Distant)
 combusta (Distant)
 consita (Melichar)
 costaricensis (Distant)
 semimaculata Fowler
 quatuordecimnotata Fowler
 cruxminor (Fowler). **Comb. nov.**
 illuminatula Breddin. **Syn. nov.**
 quadripustulata Melichar
- fimbriolata (Stål)
 fraseri (Distant)
 funebri (Distant)
 gorgonae (Lallemand)
 inconclusa (Metcalf)
 incarnata Lallemand. Preoccupied
 indicata Distant
 insignita (Fowler)
 litrata (Le Peletier & Serville)
 ruforivulata (Stål)
 mura (China & Myers)
 noctua (Distant)
 petrificata (Germar)
 paraguayana (Lallemand)
 phantastica (Breddin)
 curvata Melichar. **Syn. nov.**
 posticata (Stål)
 quadripunctata (Walker)
 raripila (Jacobi). **Comb. nov.**
 rubripennis Schmidt
 rubropicta (Melichar)
 spectabilis (Distant)
 stygia (Fowler)
 tibialis (Signoret)
 trifissa (Jacobi). **Comb. nov.**
 tristis (Fabricius)
 stellata Walker. **Syn. nov.**
 semifascia Walker
 duodecimpunctata Walker
 ssp. guppyi Urich
 ssp. monagasi (Fennah)
 ssp. quadrimaculata (Fennah)
 ssp. stalii (Lallemand)
 ssp. suffusa (Walker). **Stat. nov.**
 ssp. walkeri (Lallemand). **Comb. nov.**
 williamsi (Lallemand)
- Makonaima
- lucifera (Jacobi)
 circumducta Distant

- rivularis Distant
 Marcion
 equestris (Lethierry)
 Maxantonia
 aurantiaca Nast
 bahiana (Lallemand)
 bifurcata Carvalho & Webb
 cantator Schmidt
 catella (Jacobi)
 certa Nast
 chiriquensis (Lallemand). **Comb. nov.**
 cognata Nast
 diversa Nast
 flabellata Nast
 fortunata (Lallemand)
 galeata Nast
 gracilis Nast
 inepta Nast
 innotata (Lallemand)
 jelskii Nast
 lineola (Fabricius)
 lobata Nast
 mylabroides (Fowler)
 nigripes (Lallemand)
 notata (Walker)
 opulenta Nast
 plagiata (Burmeister)
 divisa Walker
 praeminiata (Fowler)
 pudica Carvalho & Sakakibara
 punctigera (Germar)
 quadrifasciata (Le Peletier & Serville)
 ornata Walker
 sexmaculata Lima *et al.* **Syn. nov.**
 quadriguttata (Walker)
 bipustulata Walker
 quercus Carvalho & Sakakibara
 rubescens (Lallemand)
 scindens (Walker)
- cantatrix* Schmidt
 scita (Walker). **Status revalidated**
 signifera (Lallemand)
 speciosa (Lallemand)
 stabilis Nast
 Monecphora
 cingulata (Le Peletier & Serville)
 soligena Walker
 fryi (Distant)
 longitudinalis Lallemand
 nigritarsis Stål
 nigroapicata Lallemand
 opulenta Lallemand
 ornata Lallemand. Preoccupied
 ornatissima Metcalf
 pallida Lallemand
 semilutea Stål
 sipolisi (Fallau). **Comb. nov.**
 Neaenus
 varius Fowler
 Neolaccogrypota
 brunnea Lallemand
 Neomonecphora
 apicalis (Le Peletier & Serville). **Comb. nov.**
 nov.
 insignis Distant
 nigropraetexta Lallemand. **Syn. nov.**
 nov.
 laurentana Lallemand
 lunulata (Lallemand). **Status revalidated, comb. nov.**
 obtusa Nast
 robusta Nast
 Neosphenorhina
 curvipenis Carvalho & Webb
 festa (Germar)
 parallela Walker
 notabilis (Walker)
 ocellata (Walker)

schombergi Costes & Webb
 Notozulia
 enteriana (Berg)
 partenia Melichar. **Syn. nov.**
 alboornata Lallemand
 Ocoaxo
 assimilis (Walker)
 bivittus (Walker)
 vittatipennis Stål
 confusus (Nast)
 costaricanus Nast
 *cruciatu*s (Walker). **Comb. nov.**
 cygnus (Nast)
 digitatus (Nast)
 distans (Nast)
 femoratus (Nast)
 fowleri (Lallemand)
 imperans (Fowler)
 ssp. *sexnotata* (Fowler)
 inflexus (Nast)
 insularis (Lallemand)
 lineatus (Walker)
 lineolatus (Amyot & Serville)
 nicaraguanus (Nast)
 nuptialis (Stål)
 ornatipennis (Stål). **Comb. nov.**
 panamensis (Nast)
 punctus (Nast)
 quezaltanus (Nast)
 relatus (Nast)
 ruidus (Distant). **Comb. nov.**
 secundarius (Nast)
 septemnotatus (Distant)
 similis (Walker)
 tucurricae (Lallemand)
 tullia (Distant)
 turpior (Fowler)
 varians (Stål)

Olcotomaspis
 versicolor (Lallemand)
*Orodamn*i*s*
 rhynchosporae (China & Myers)
Pachacanthocnemis
 bella (Walker)
 simillima Schmidt
 ssp. *lugubris* (Fowler). **Comb. nov.**
 ssp. *picata* (Fowler). **Stat. nov.**,
 Comb. nov.
Pachypterinella
 fusca Lallemand
Panabrus
 dominicanus (Distant)
Plagiophlebotena
 Paratreiecephora Lallemand
 smaragdina (Jacobi)
 tigrina Schmidt
Prosapia
 bicincta (Say)
 bifascia Walker
 angusta Walker
 basalis Walker
 neglecta Walker
 fraterna Uhler
 chiapana Hamilton
 flavifascia (Metcalf & Bruner). **Comb. nov.**
 fortior Hamilton
 hemelytra Hamilton
 ignifera Hamilton
 ignipectus (Fitch)
 inferens (Walker)
 isobar Hamilton
 latens Fennah
 ssp. *turrialbae* Fennah
 miles (Fowler)
 plagiata (Distant)
 distanti Lallemand. Preoccupied
 biformis Lallemand

- ripalis Fennah
 simulans (Walker)
 fasciaticollis Stål
 ssp. mulieris Fennah
 ssp. sordida Fennah
 ssp. unifasciata (Lallemand)
 teapana Fennah
 ssp. zunilana Fennah
 Schistogonia
 bidentata Schmidt
 cercopoides (Walker)
 simulans Schmidt. **Syn. nov.**
 distanti (Lallemand)
 neglecta Nast
 sanguinea (Fabricius)
 Simorhina
 sciodes Jacobi
 Sinopia
 signata Sakakibara
 Sphenoclypeana
 Guarania Nast
 brasiliensis (Distant)
 haematina (Germar). **Status revalidated**
 chapada (Distant). **Syn. nov.**
 chapada var. *distanti* Lallemand
 consanguinea (Distant)
 parana (Distant)
 ssp. major (Nast)
 parana var. *distanti* (Lallemand)
 Sphenorhina
 aequinoctialis (Jacobi). **Comb. nov.**
 badia Carvalho & Sakakibara
 binotata (Lallemand)
 bipunctata (Lallemand). **Stat. nov.**
 boliviana (Jacobi)
 brevispina Carvalho & Webb
 cingula (Melichar). **Comb. nov.**
 clarivenosa (Jacobi)
 claviformis (Jacobi)
 conspicua Distant
 modesta Lallemand
 coronata Lallemand
 croceofasciata Lallemand
 danielssoni Sakakibara & Carvalho
 decernens Walker
 discoidea (Melichar)
 discors (Jacobi). **Comb. nov.**
 dissimilis (Distant). **Comb. nov.**
 distinguenda Walker
 emerita (Jacobi)
 erigenea (Breddin)
 semirufa Melichar. **Syn. nov.**
 fallaciosa Lallemand
 fissurata Lallemand
 galbana (Jacobi)
 hebes (Distant)
 huggerti Sakakibara & Carvalho
 intricator Lallemand
 jacobii (Lallemand). **Stat. nov.**
 johannae (Distant)
 kuhlgatzi (Jacobi). **Comb. nov.**
 latifascia Walker
 limbata Lallemand. **Stat. nov.**
 livida (Jacobi)
 melanoptera (Germar)
 minuta Carvalho & Webb
 nigricephala Carvalho & Webb
 nigrotaenia Lallemand
 nigrotarsis (Signoret). *Nomen nudum.*
 normandiae Lallemand
 nox (Breddin)
 obliterata Lallemand). **Stat. nov.**
 pallida Lallemand. **Stat. nov.**
 pallifascia (Walker)
 parambae (Jacobi). **Comb. nov.**
 phalerata (Jacobi)
 pichita Sakakibara & Carvalho

- proserpina (Distant)
 quadrifera (Jacobi)
 rhodopepla (Breddin). **Comb. nov.**
 rubens Lallemand. **Stat. nov.**
 rubra (Linnaeus)
 cruentata Fabricius
 tricolor Guérin-Ménéville
 ssp. *sororia* Germar
 rubrolurida Sakakibara & Carvalho
 ruficollis (Fallou). **Comb. nov.**
 rufomaculata (Fallou). **Comb. nov.**
 translucida Lallemand. **Syn. nov.**
 sericea Lallemand
 simplex (Walker)
 solita (Melichar)
 trifasciata (Melichar). **Comb. nov.**
 unifasciata Sakakibara & Carvalho
 veterana (Jacobi)
 victoriae Lallemand
- Tapaiuna
 antica (Walker)
 caduca Fennah
 distincta (Distant). **Comb. nov.**
 pehlkei (Schmidt)
- Tiodus
 elongatus Nast
 minor Nast
 nigricans (Lallemand). **Stat. nov.,**
 Comb. nov.
 nuchalis (Jacobi). **Comb. nov.**
 rufescens Fennah
 youngi (Costes & Webb). **Comb. nov.**
- Tomaspis
 furcata (Germar)
 collaris Le Peletier & Serville
 nigricans Amyot & Serville
 rufifrons Melichar
 rufifrons Schmidt
 furcata var. *rufipennis* Schmidt
- furcata* var. *completa* Schmidt
- Tomaspisina
 frontalis (Walker)
 fuliginosa Nast
 rubromarginata Nast
- Tomaspisinella
 apicifasciata (Fowler). **Comb. nov.**
 parva Lallemand
- Tropidorhinella
 inflata (Jacobi)
 lanio (Le Peletier, & Serville). **Comb. nov.**
 montana Schmidt
 onorei Carvalho & Webb
- Tunaima
 brunneoaurantiaca Carvalho
 brunneolutea Carvalho
 brunneorubra (Lallemand)
 decorata (Lallemand)
 fasciatipennis (Stål). **Comb. nov.**
 ferranti (Lallemand)
 fossor (Lallemand)
 insignifica (Metcalf)
 insignis Lallemand). Preoccupied
 lepida (Stål). **Comb. nov.**
 pellucens (Stål)
 divisa Walker. Preoccupied
 walkeri Lallemand. **Syn. nov.**
 semiflava (Stål). **Comb. nov.**
 jonesi Distant. **Syn. nov.**
 trifasciata (Lallemand)
 vinula (Stål). **Comb. nov.**
- Typeschata
 flammans (Walker).
 acuta Stål
 intermedia Schmidt
 marginata (Fabricius). **Comb. rev.**
 rufivaria (Walker). **Syn. rev.**

Urubaxia

tricolor (Distant)

Vorago

boxi Fennah

nanta Fennah

radicis (China & Myers)

undulata (Lallemand)

Zuata

angulata (Jacobi). **Comb. nov.**

araguana (Fennah)

bimaculata (Lallemand)

bipunctata (Lallemand)

quinesignata Lallemand

callangana (Lallemand)

ephippiata (Breddin)

fusca (Lallemand)

includens (Walker)

infuscata (Lallemand)

luteofascia Carvalho & Webb

luteomaculata (Lallemand)

marginata (Lallemand)

nolckeni (Fowler). **Comb. nov.**

ochraceorosea (Lallemand)

ohausi (Jacobi)

oneraria (Jacobi). **Comb. nov.**pica (Jacobi). **Comb. nov.**

ssp. interrupta (Lallemand)

ssp. limbata (Lallemand). **Comb. nov.**

praenitida (Fowler)

ssp. secta (Lallemand). **Comb. nov.**ssp. truncata (Lallemand). **Comb. nov.**

pseudoripuaris (Lallemand)

punctata (Lallemand)

ravida (Jacobi)

ravidella (Lallemand)

ripuaris (Lallemand)

seguyi (Lallemand)

sierrana (Lallemand)

tettigoniella (Breddin)

transita (Lallemand)

Zulia

Zulia (Neozulia) Fennah

birubromaculata (Lallemand)

carbonaria (Lallemand). **Comb. nov.**

monticola (Lallemand)

morosa (Jacobi). **Comb. nov.**

vilior (Fowler)

laevigata Lallemand. **Syn. nov.**

ssp. costaricensis Fennah

Zulia (Zulia)

brunnea (Lallemand)

obscura (Fowler). **Stat. nov.**

pubescens (Fabricius)

metallica Walker. **Syn. nov.***colombiana* Lallemand. **Syn. nov.***vespillo* Fennah. **Syn. nov.***charon* Fennah. **Syn. nov.***costalimar* Franco. **Syn. nov.**

ssp. aequatoriana (Lallemand)

SPECIES OF UNCERTAIN GENERIC
PLACEMENT

Tomaspis biolleyi (Distant)

Tomaspis crocea (Walker)

Tomaspis cruralis (Stål)

Tomaspis handlirschi Fowler

Tomaspis inclusa (Walker)

Tomaspis intermedia Fowler

Tomaspis laterinotata Fowler

Neanus luteosignatus (Valdés Ragués)

Tomaspis platensis Berg

Tomaspis pulchralis Valdés Ragués

Tomaspis rubripennis (Blanchard)

Tomaspis tripars (Walker)

Tomaspis venosa (Walker)

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veterana, Spheonorhina, (Jacobi) 95

victoriae, Spheonorhina, Lallemand 95

vilior, Zulia (Neozulia), (Fowler) 105

vinula, Tunaima, (Stål) 100

viridescens, Monecphora, Walker (= Deois (Fennahia) flexuosa) 59

vittata, Kanaima, (Walker) 66

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walkeri Mahanarva tristis, (Lallemand) 74

walkeri, Tomaspis, Lallemand (= Tunaima pellucens) 100

williamsi, Ischnorhina, Lallemand 64

williamsi, Mahanarva, (Lallemand) 74

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youngi, Tiodus, (Costes & Webb) 96

ZUATA 102

ZULIA 104

zunilana, Prosapia teapana, Fennah 87

Figures

Explanation on the figure legends

The male genitalia figures are labelled consistently as follows:

a, aedeagus, left lateral view.

b, aedeagus, anterior view. This view is taken to mean the anterior view as observed from the orientation given here of the lateral figure i.e. with the aedeagal shaft perpendicular and not the more anatomically correct dorsal view, with the aedeagal shaft horizontal.

c, left paramere, lateral view (drawn entire or without basal apophysis and with setae sometimes omitted).

d, male subgenital plate and adjacent area of pygofer, ventrolateral view, flattened on a slide (Broomfield) or *in situ* (Webb) (see also comments in “Material and methods – Figures and figured specimens”).

The above explanations for figures a-d are not repeated hereafter in the figure legends. Additional male genitalia structures illustrated are labelled with letters from e onwards but the letters are not used consistently. These structures are explained in the respective legends.

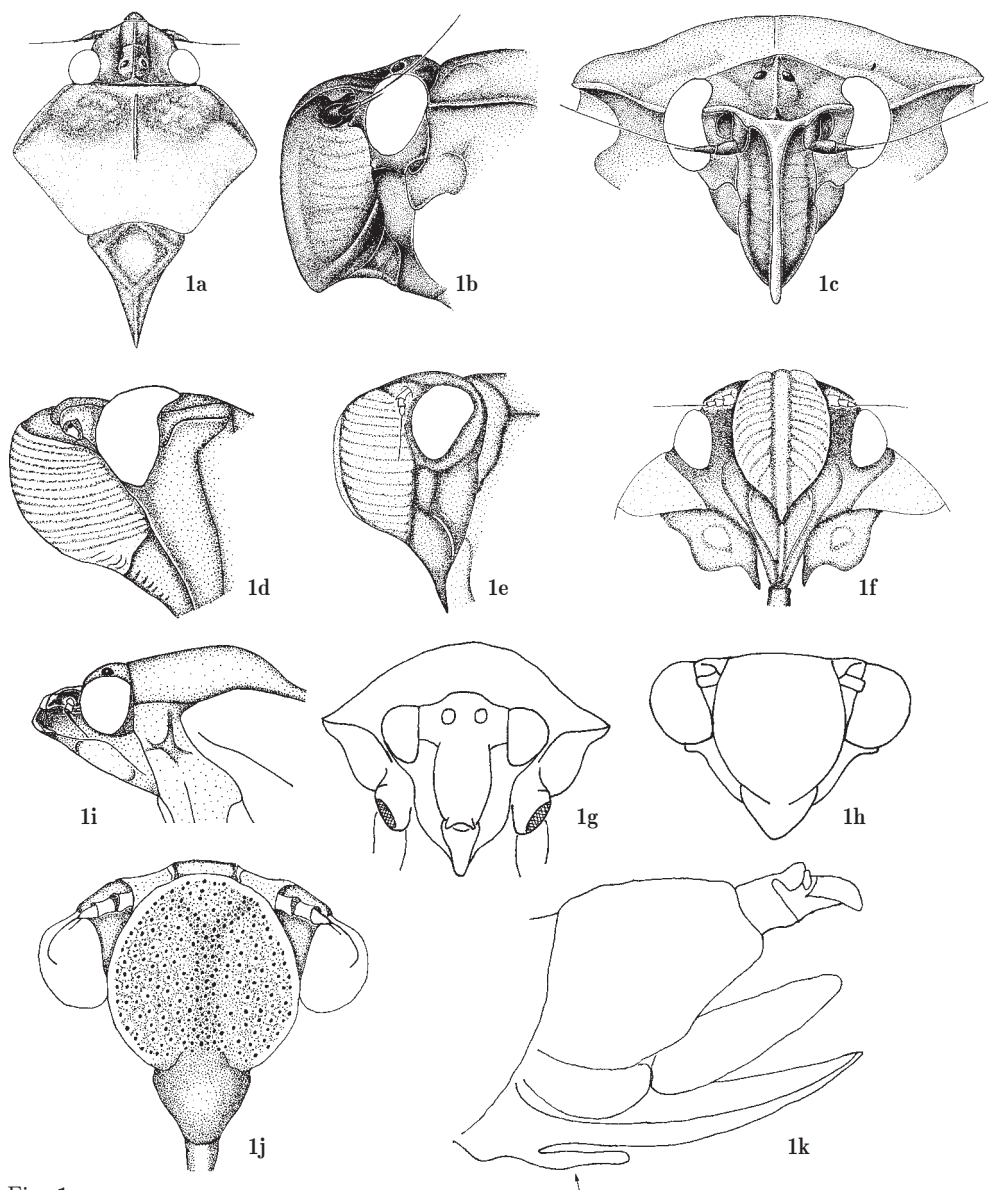
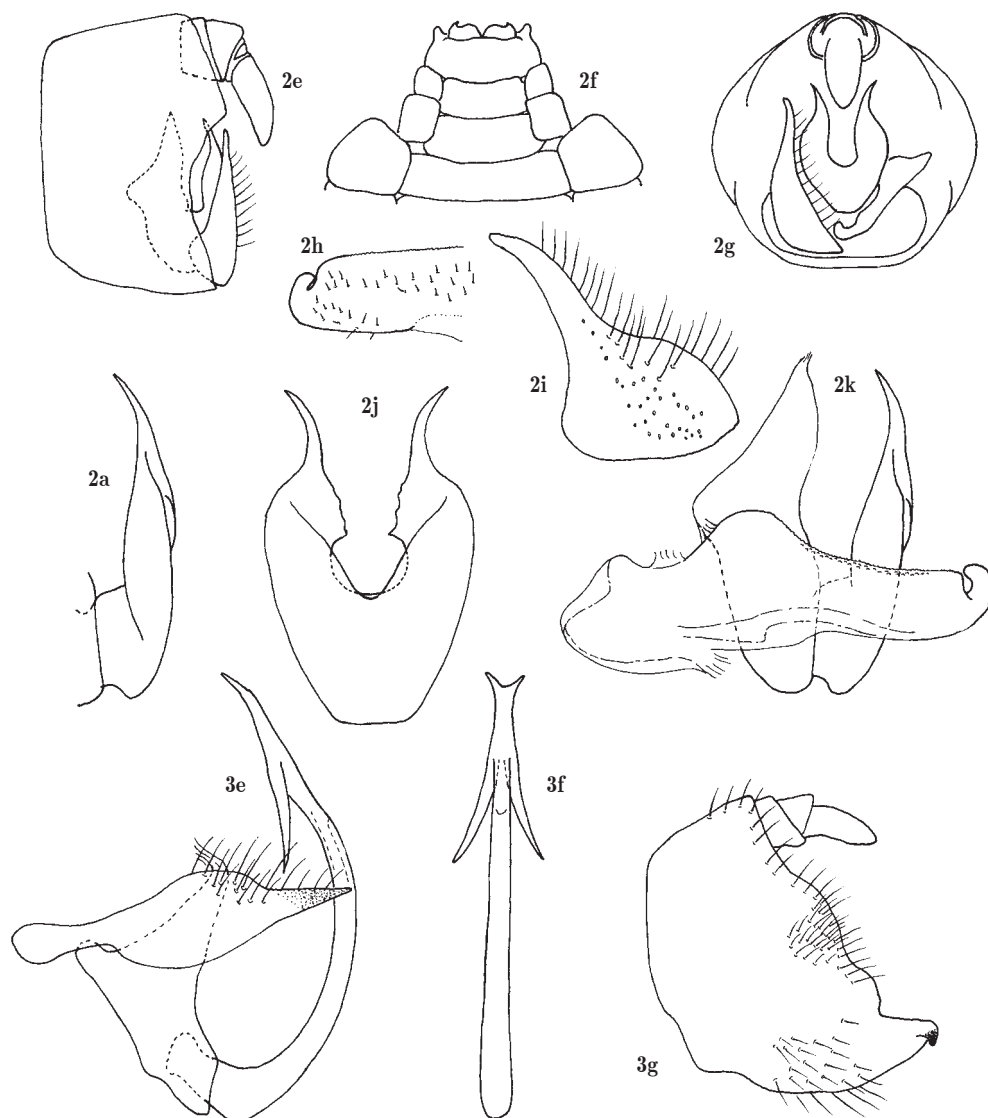


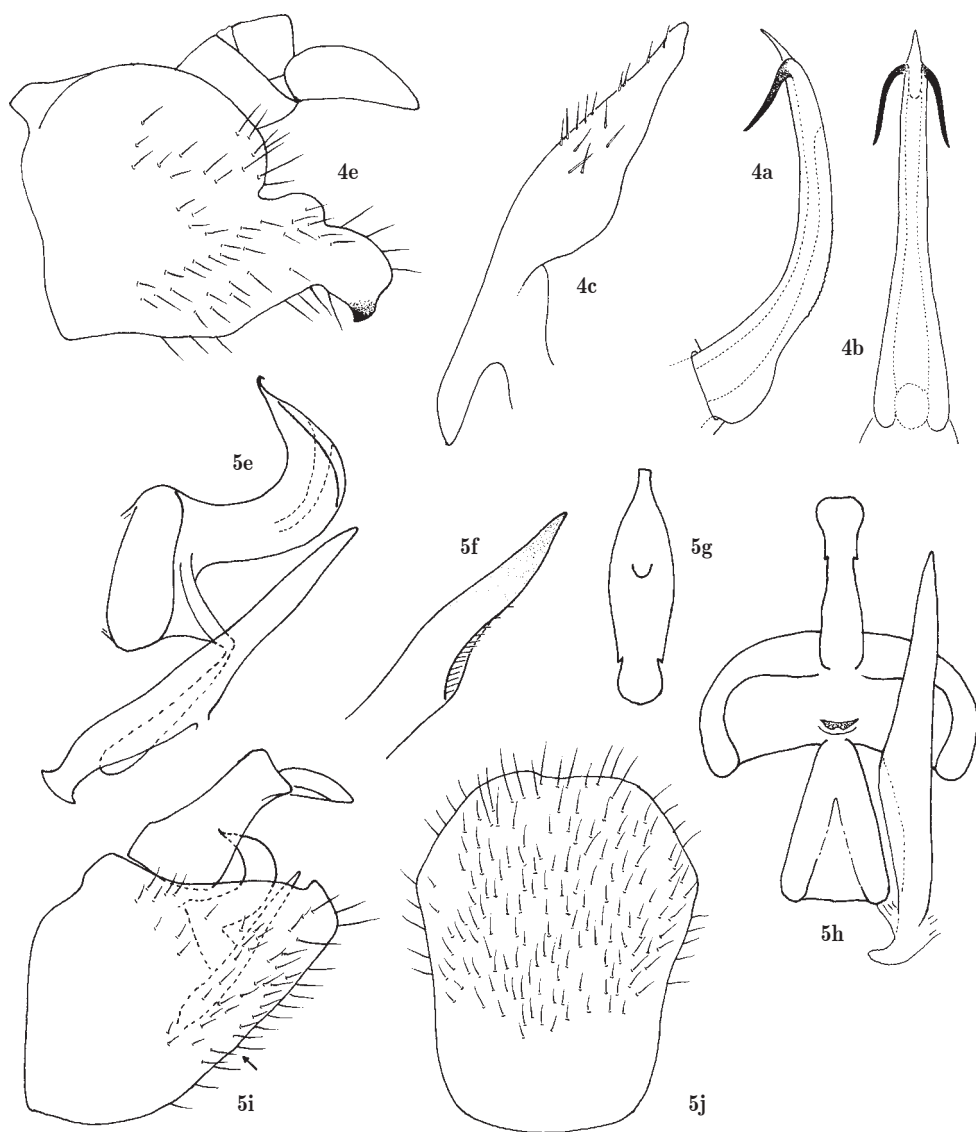
Fig. 1.

a-c, *Ischnorhina ephippium* (Fabricius): a head and thorax dorsal view; b same, left lateral view; c same, anterior view; d, *Korobona lineata* Distant: head and thorax, left lateral view; e, f, *Deois* (*Fennahaia*) *flexuosa* (Walker): head and thorax, left lateral view and ventral view, respectively; g, *Hyboscarta rubrica* Jacobi: head and thorax anterior view (modified from Lallemand, 1912, Plate 5, fig. 12); h, *Zuata araguana* (Fennah) (modified from Fennah, 1968 Fig. 7c); i-k, *Carachata dimorphica* Carvalho & Sakakibara: i head and thorax left lateral view, j face, ventral view, k female terminalia left lateral view (arrow indicates basal process of first valvulae of ovipositor).



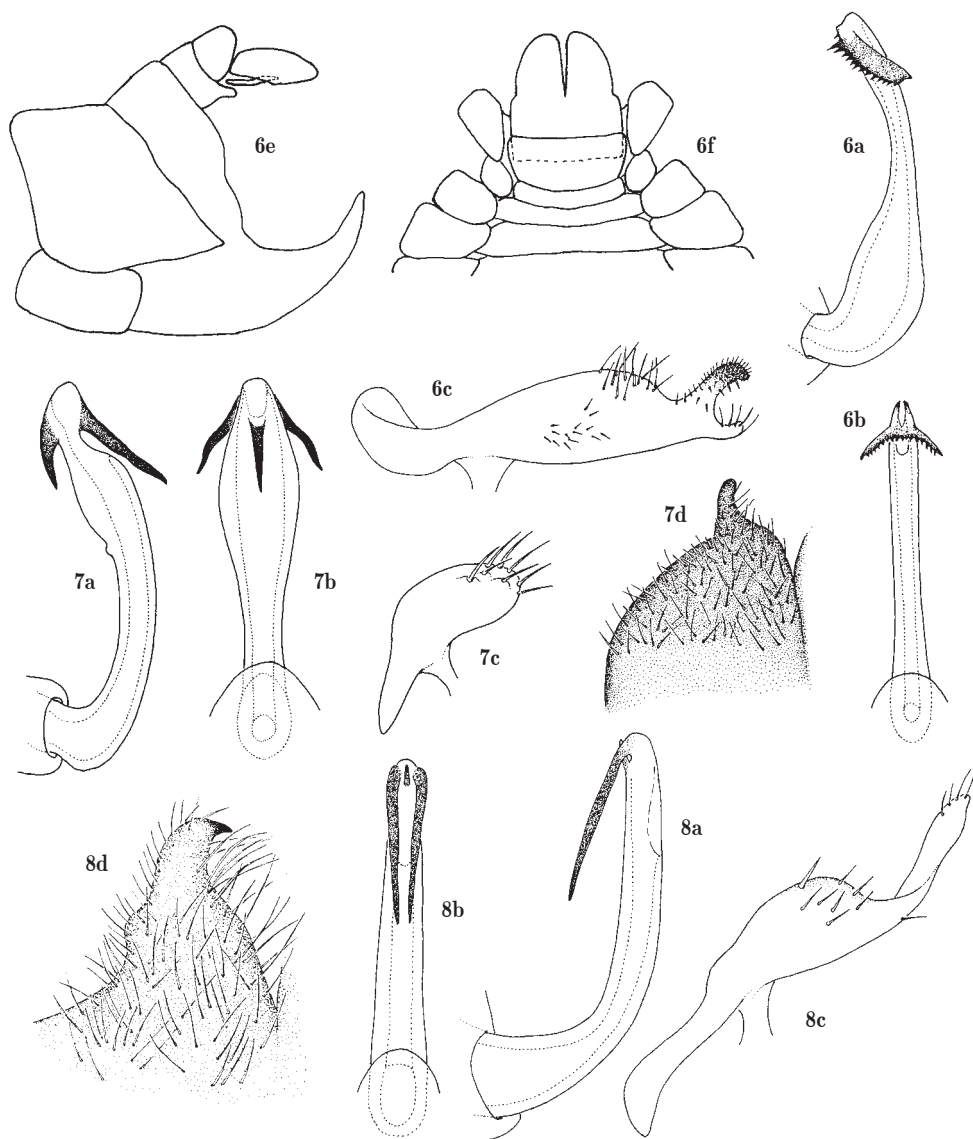
Figs 2-3.

2, *Hemitriecphora xanthospila* (Stål) (syntype *Tomaspis jamaicensis* Distant) (Old World - Africa): e male genital capsule; f apex of male abdomen, ventral view; g male genital capsule, posterior view; h left paramere, medial view; i left subgenital plate, ventral view; j aedeagus, posterior view; k aedeagus, left paramere and connective, left lateral view. 3, *Simorhina sciodes* Jacobi (syntype): e aedeagus, paramere and connective, left lateral view; f aedeagus, posterior view; g male genitalia capsule, left lateral view.



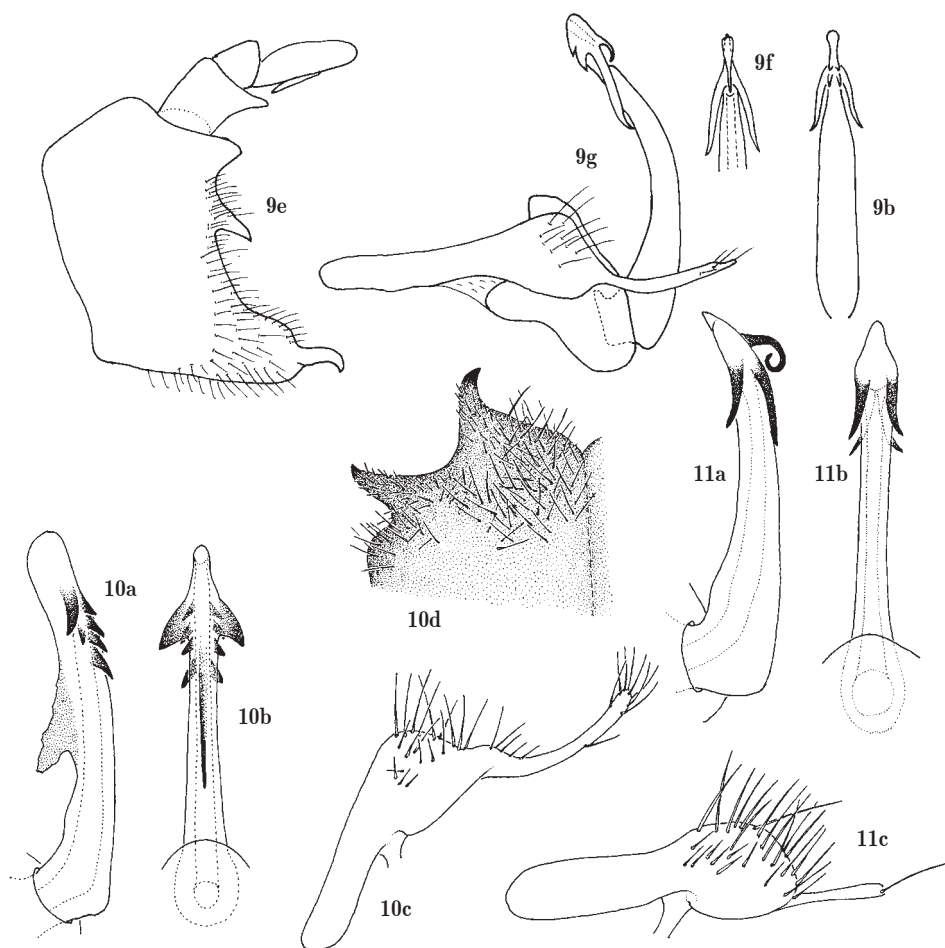
Figs 4-5.

4, *Hemitomaspis caligata* (Jacobi) (Peru, Pachitea): e male genital capsule, left lateral view. 5, *H. minuscula* (Jacobi) (syntype): e, h aedeagus, left paramere and connective, left lateral and dorsal view respectively; f apex of left style, ventral view; g aedeagus, posterior view; i male genital capsule, left lateral view, arrow indicates view of fig. j; j male genital capsule, view from arrow in fig. i.



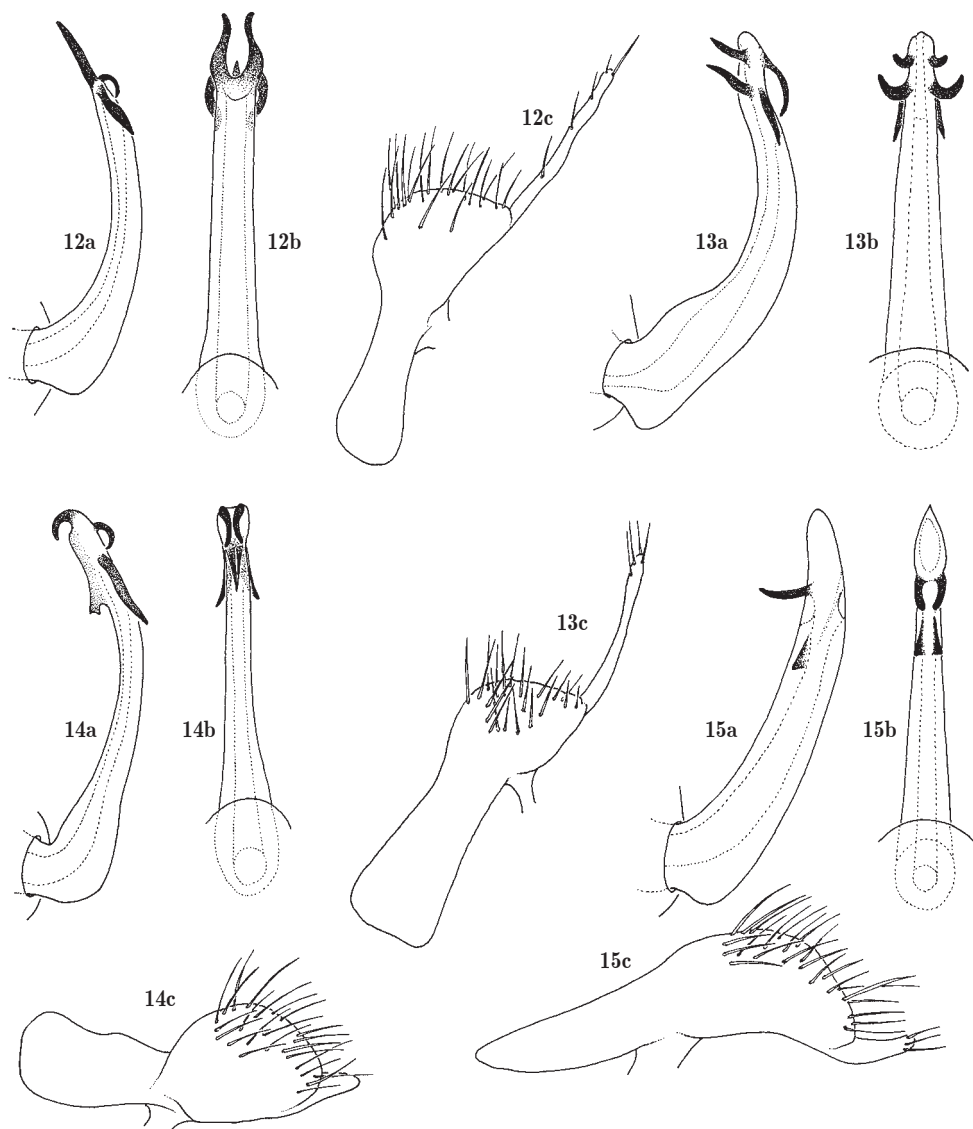
Figs 6-8.

6, *Neaenus varius* Fowler (syntypes Guerrero, a, c 7000'; e, f 4600'): e, f apex of male abdomen, left lateral and ventral view respectively. 7, *Marcion equestris* (Lethierry) (Venezuela, P. Cabello). 8, *Hemitomaspis ignobilis* (Fowler) (syntype).



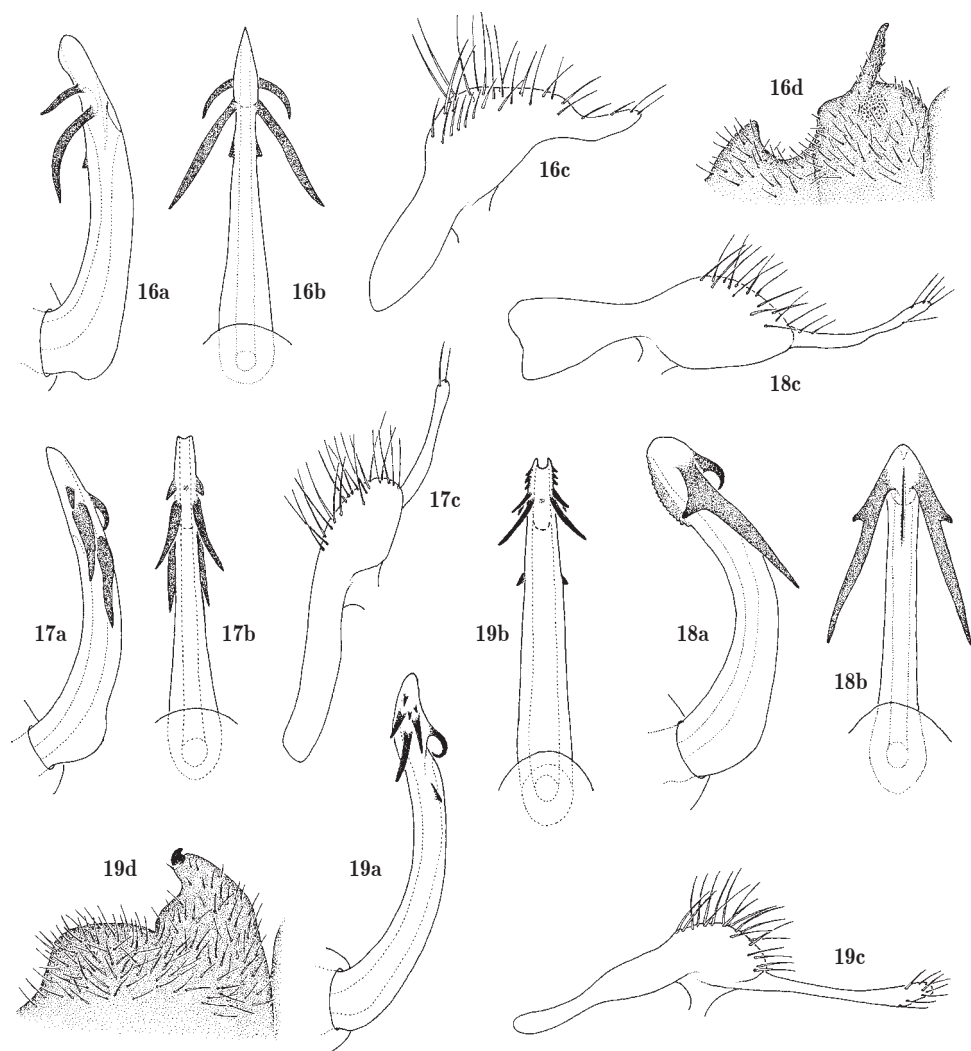
Figs 9-11.

9, *Zuata ohausi* (Jacobi) (syntype): e male genital capsule, left lateral view; f aedeagus, posterior view; g aedeagus, paramere and connective, left lateral view. 10, *Z. bipunctata* (Lallemand) (syntype). 11, *Z. pica interrupta* (Lallemand) (syntype).



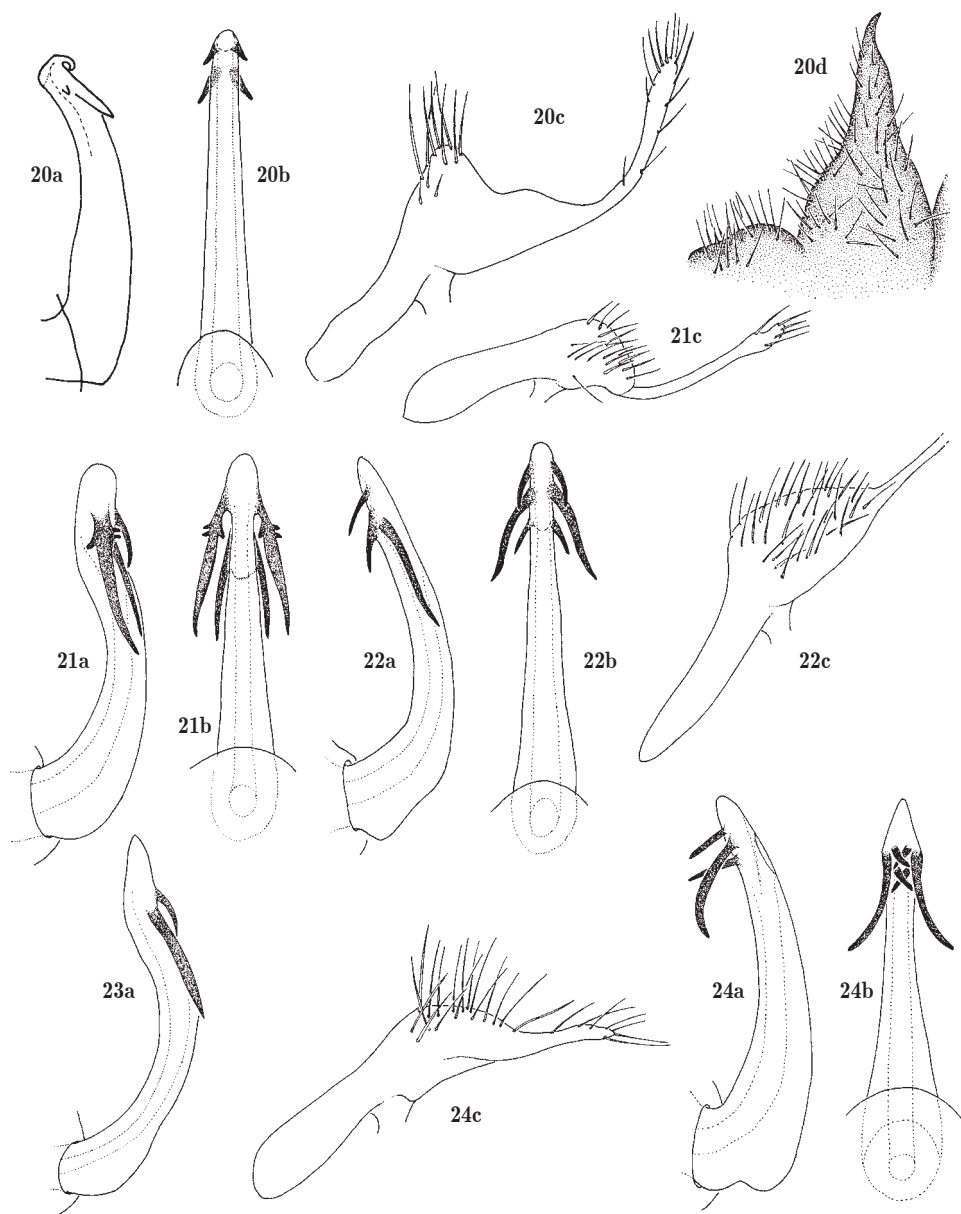
Figs 12-15.

12, *Zuata includens* (Walker) (holotype). 13, *Z. pseudoripuaris* (Lallemand) (syntype). 14, *Z. fusca* (Lallemand) (syntype). 15, *Z. ravidata* (Jacobi) (Peru, Marcapata).



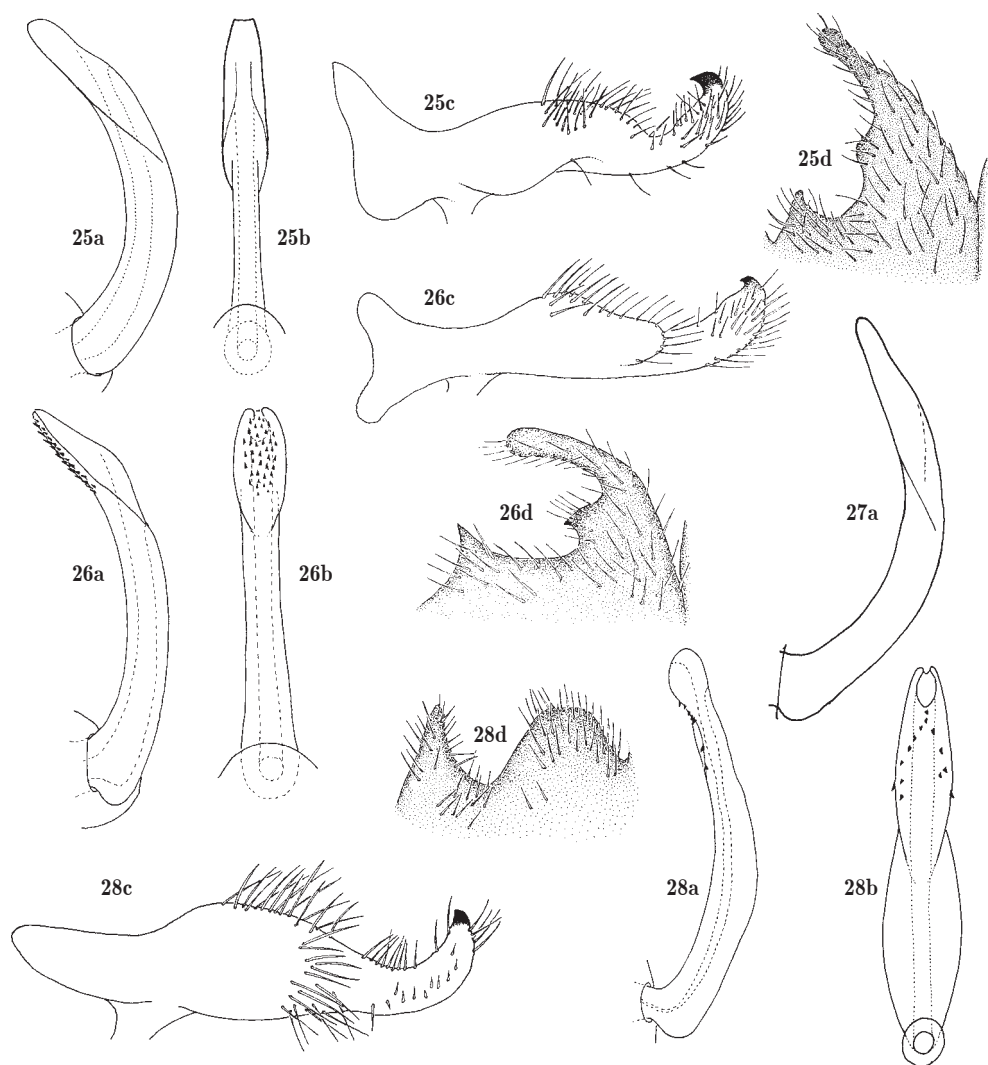
Figs 16-19.

16, *Zuata ravidella* (Lallemand) (syntype). 17, *Z. transita* (Lallemand) (syntype). 18, *Z. sierrana* (Lallemand) (syntype). 19, *Z. araguana* (Fennah) (syntype).



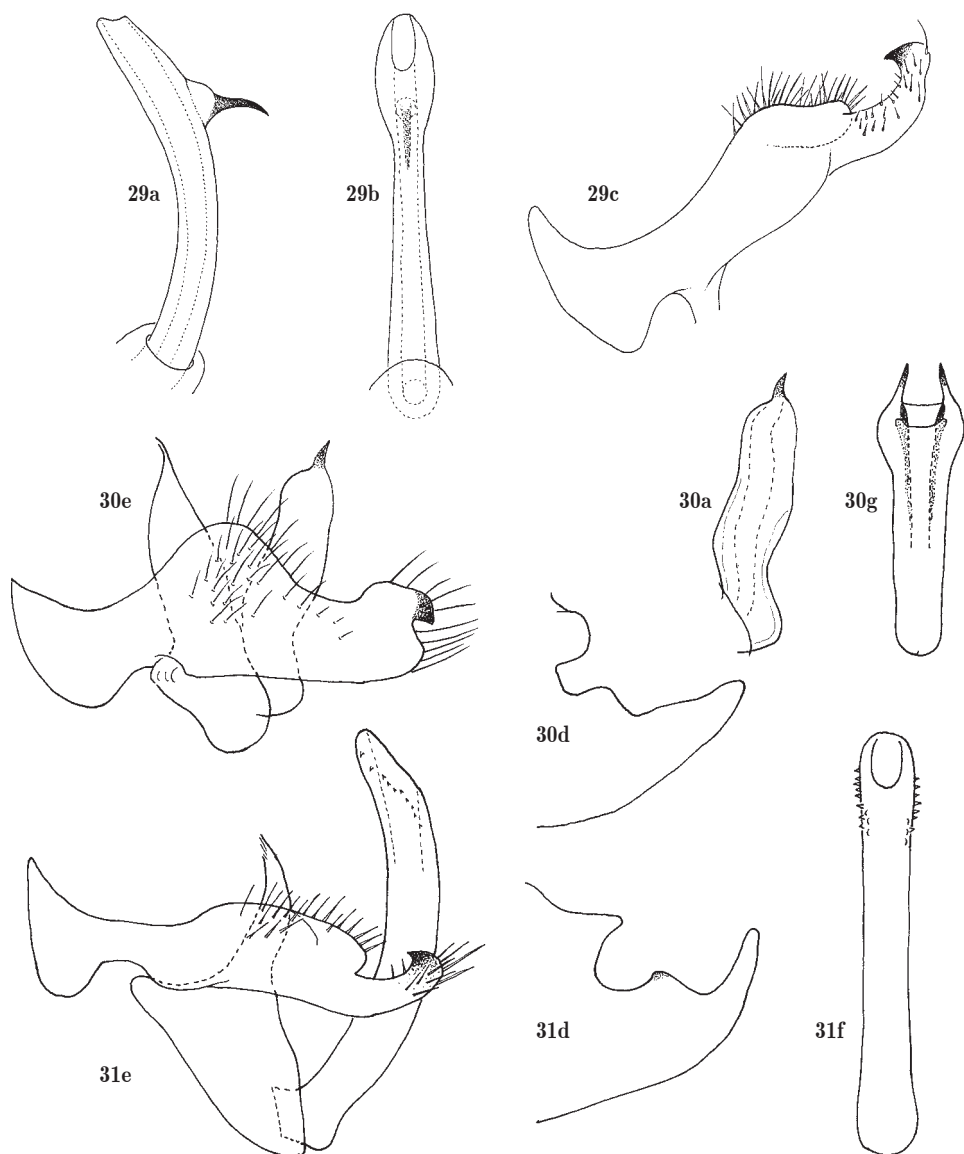
Figs 20-24.

20 *Zuata luteofascia* Carvalho & Webb (a holotype, b-d paratype). 21, *Z. marginata* (Lallemand) (holotype). 22, *Z. ephippiata* (Breddin) (Ecuador, Mera). 23, *Z. ochraceorosea* (Lallemand) (syntype, from slide mount). 24, *Z. bimaculata* (Lallemand) (Peru, Callanga).



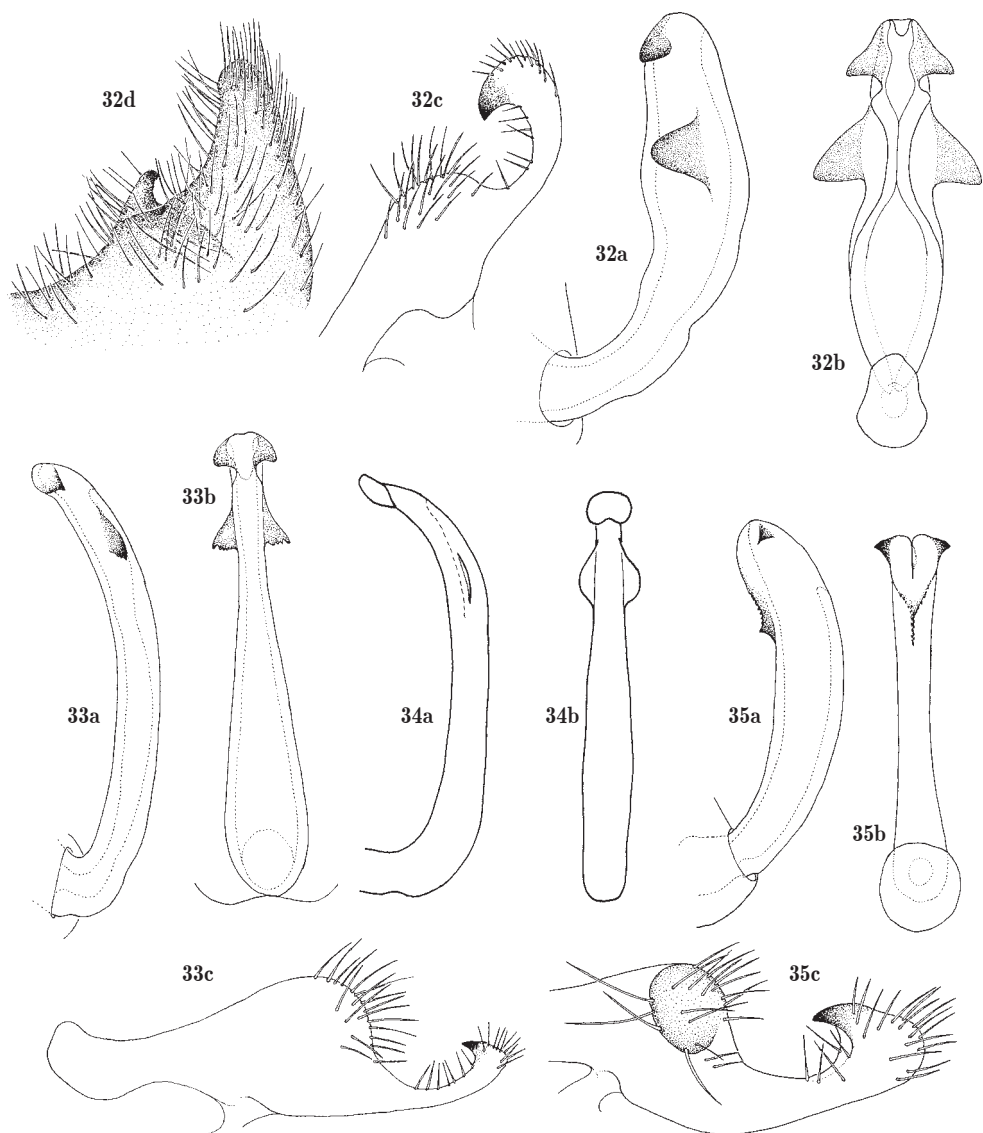
Figs 25-28.

25, *Tapaiuna antica* (Walker) (holotype *Hyboscarta caduca* Fennah). 26, *T. pehlkei* (Schmidt) (lectotype). 27, *T. distincta* (Distant) (syntype). 28, *Bradypteroscarta infuscata* Lallemant (syntype).



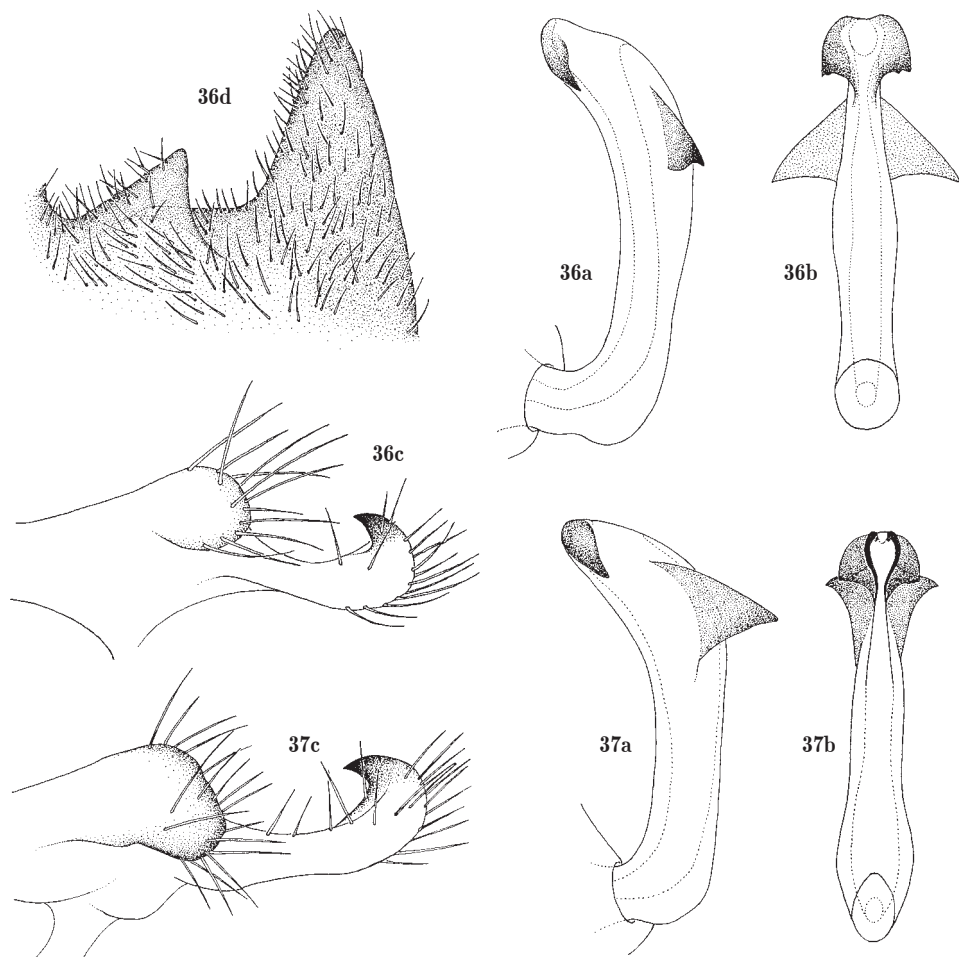
Figs 29-31.

29, *Chinana argentina* Lallemand (syntype). 30, *Hyboscarta rubrica* Jacobi (syntype): e aedeagus, connective and paramere, left lateral view; f aedeagus and connective, left lateral view; g aedeagus, posterior view. 31, *H. melichari* Lallemand (syntype): e aedeagus, connective and paramere, left lateral view; f aedeagus, posterior view.



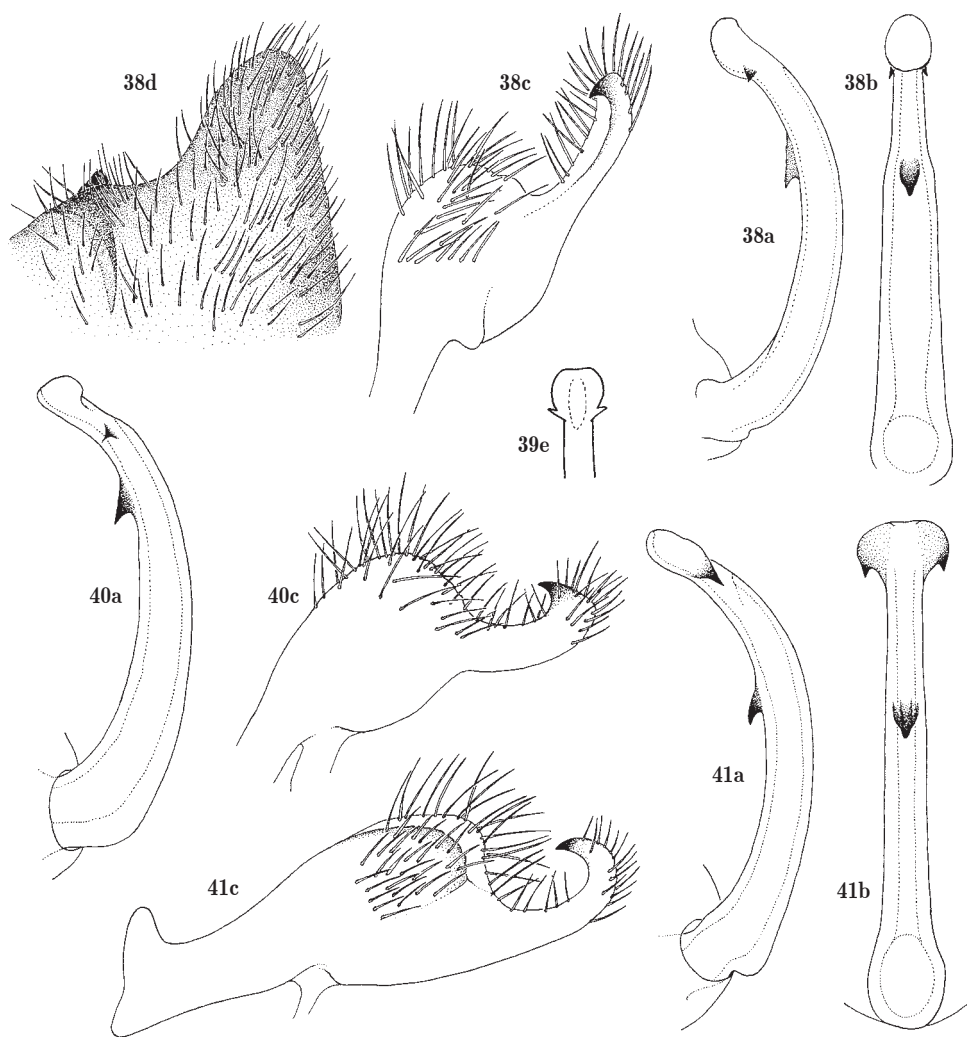
Figs 32-35.

32, *Homalogrypta coccinea* (Fabricius): (Brazil, Mato Grosso). 33, *H. interrupta* Schmidt: (Peru, Valle Chanchamayo). 34, *I. quadrimelasma* Costes & Webb (holotype). 35, *I. unifascia* (Walker) (Brazil, Bahia).



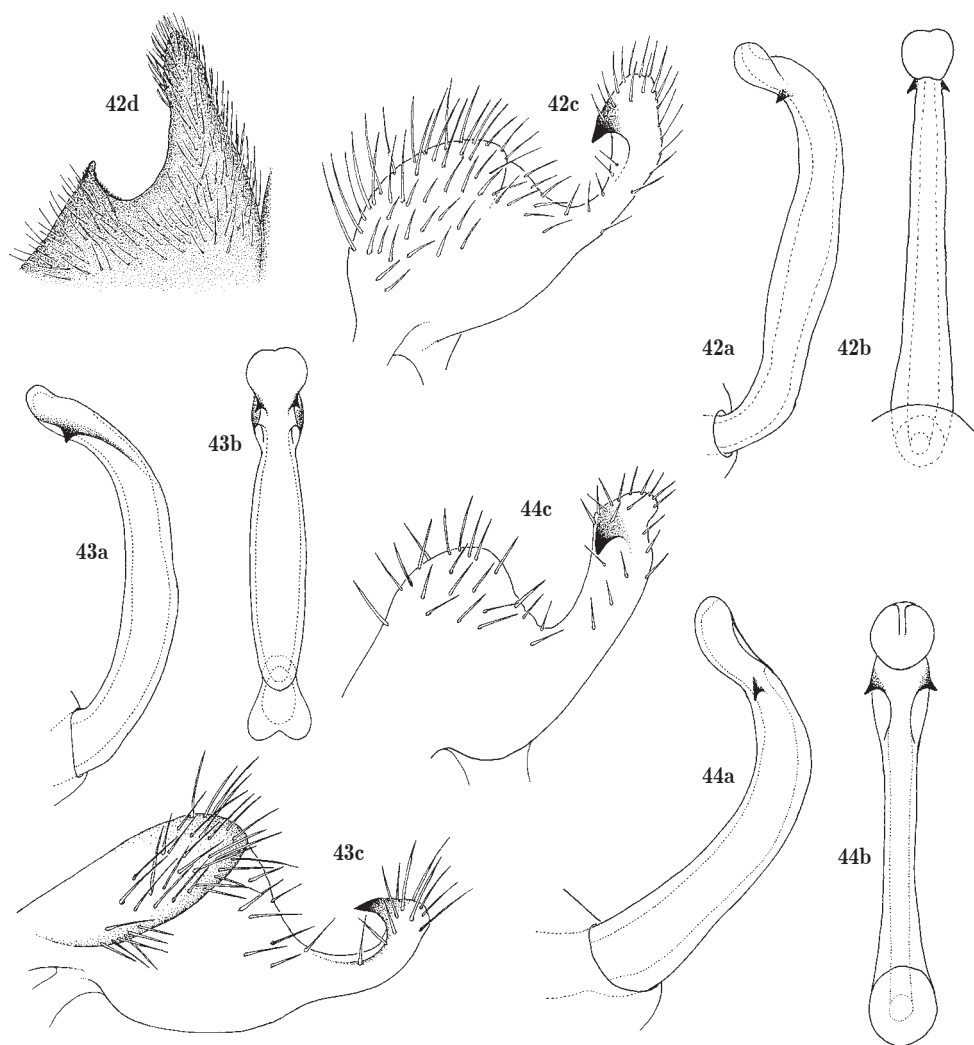
Figs 36-37.

36, *Ischnorhina surinamensis* Schmidt (French Guiana, Nouveau Chantier). 37, *I. ephippium* (Fabricius) (Guyana, Kutari Sources).



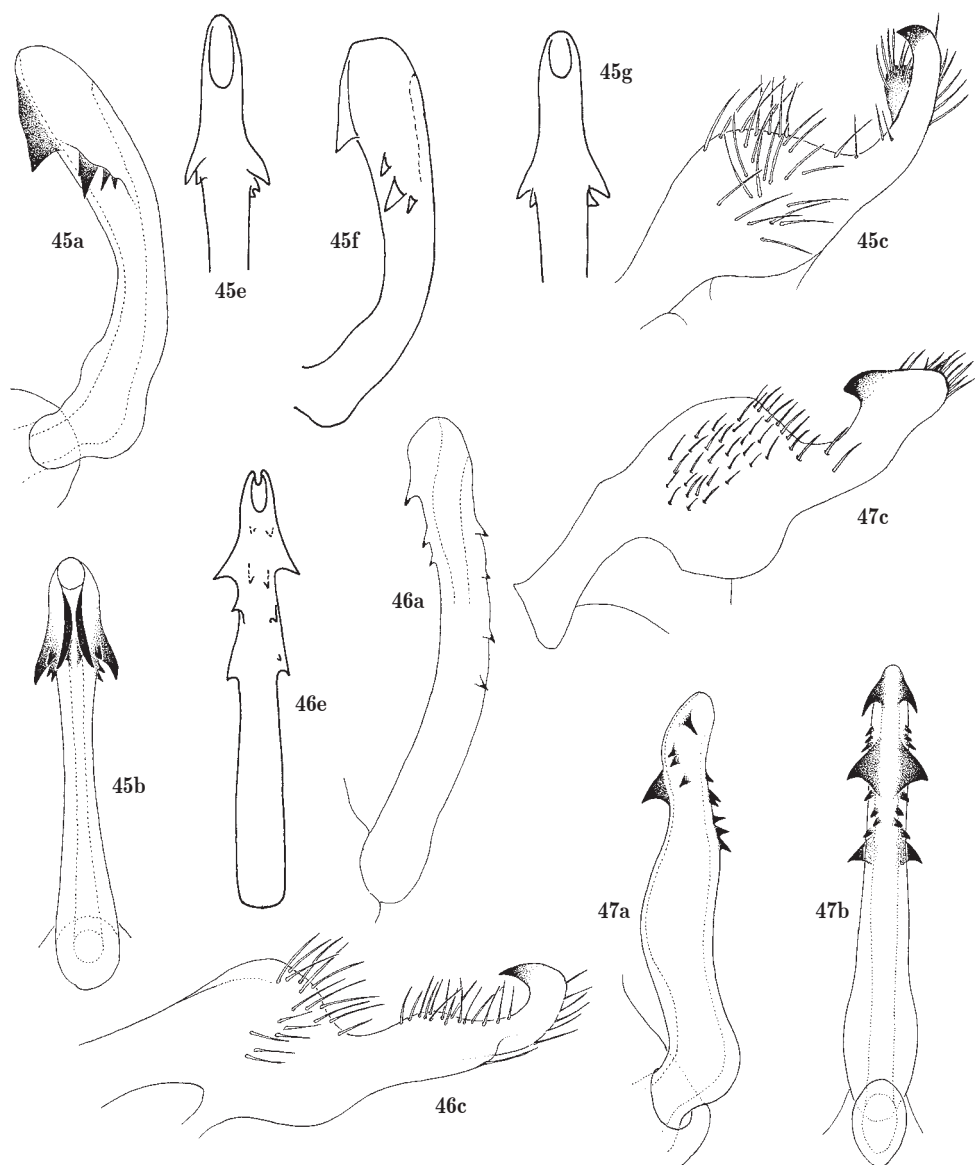
Figs 38-41.

38, *Typeschata marginata* (Fabricius) (Brazil, Parana). 39, *T. intermedia* Schmidt (syntype): e apex of aedeagus, anterior view. 40, *Sphenoclypeana parana* (Distant) ('S. Brazil'). 41, *S. braziliensis* (Distant) ('Brazil').



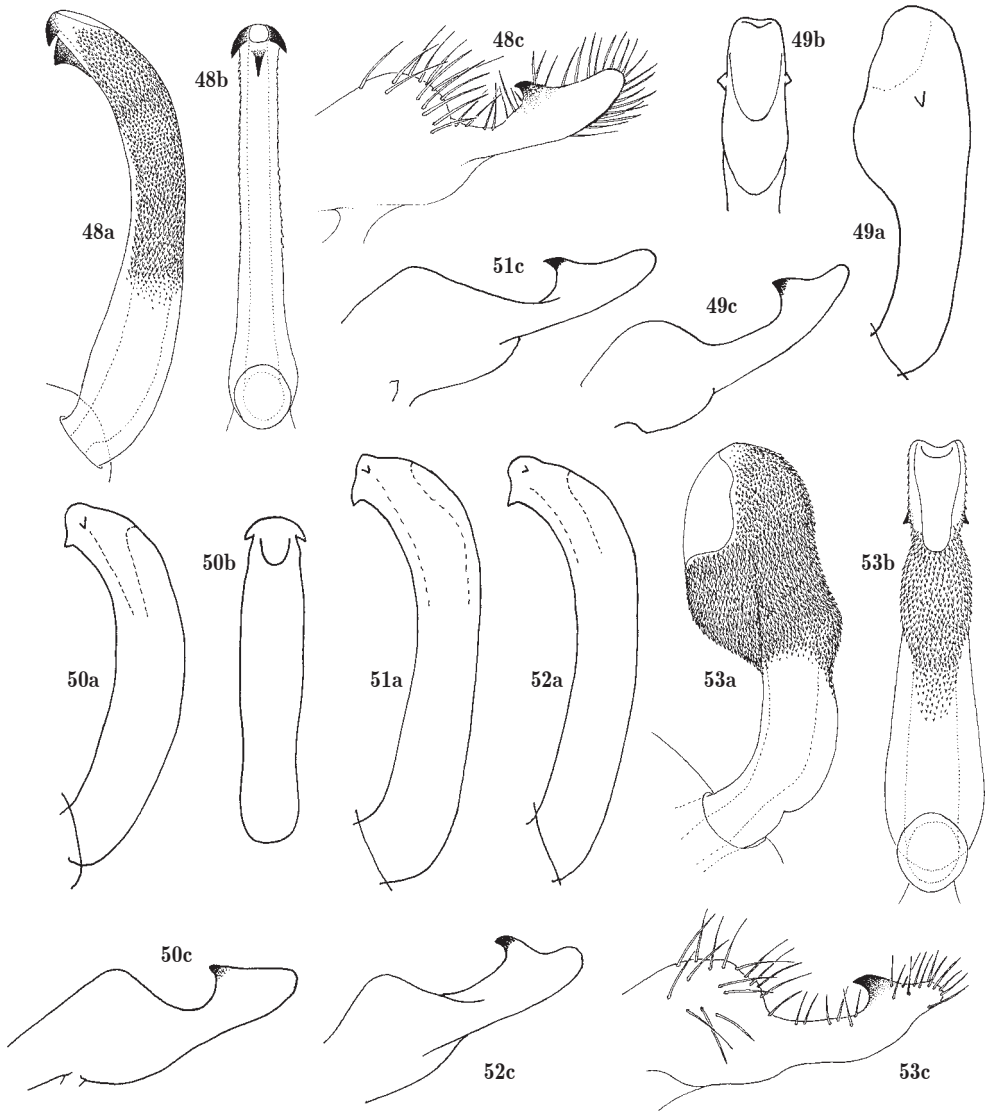
Figs 42-44.

42, *Neosphenorhina ocellata* (Walker) (Brazil, Hansa Humboldt). 43, *N. festa* (Germar) (no locality, '569'). 44, *N. curvipenis* Carvalho & Webb (holotype).



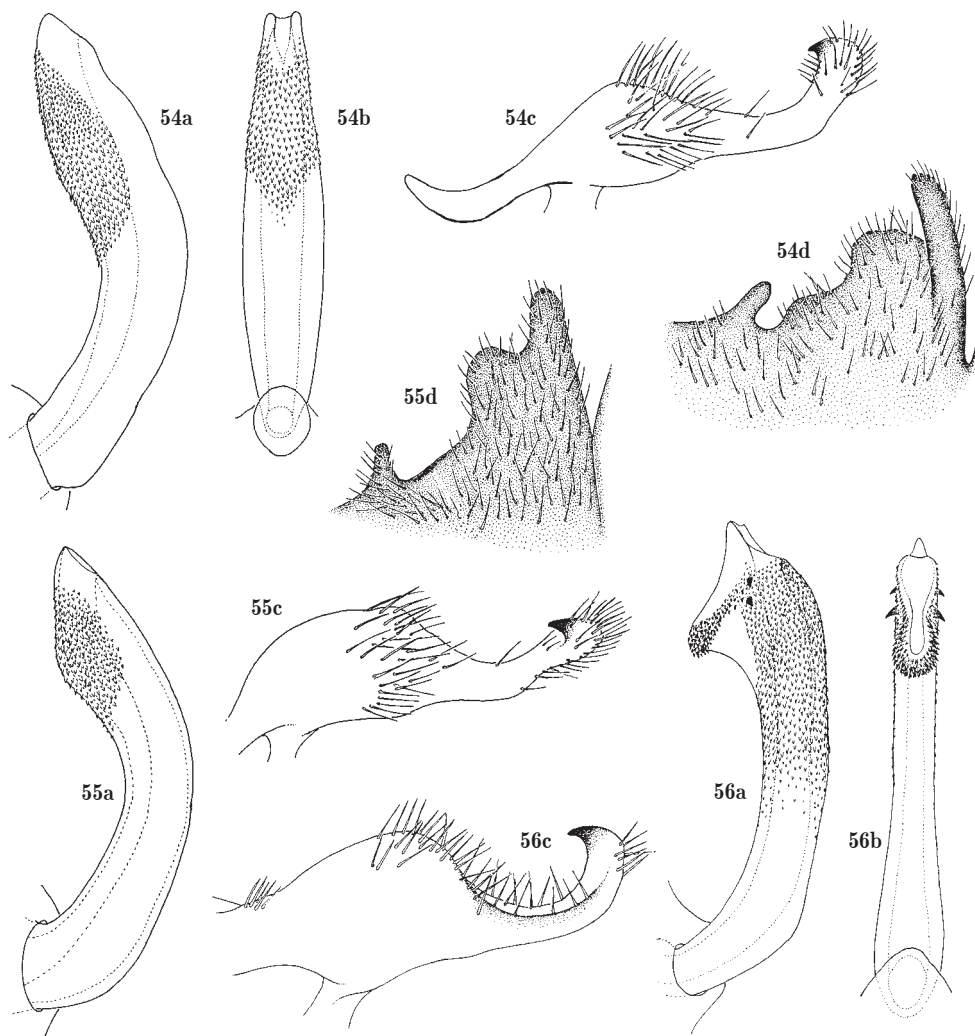
Figs 45-47.

45, *Laccogrypta bogotana* (Distant) (a-c, e syntype; f, g syntype *Ischnorhina invalida* Jacobi): e, g apex of aedeagus, posterior view; f aedeagus, left lateral view. 46, *L. consul* (Jacobi) (a, c Peru, Chanchamayo, Hoffmanns – MIZW; e syntype *L. consul* var. *indistincta* (Lallemand) Peru, Chanchamayo): e aedeagus posterior view. 47, *L. xanthomela* (Walker) (Brazil, Sao Paulo).



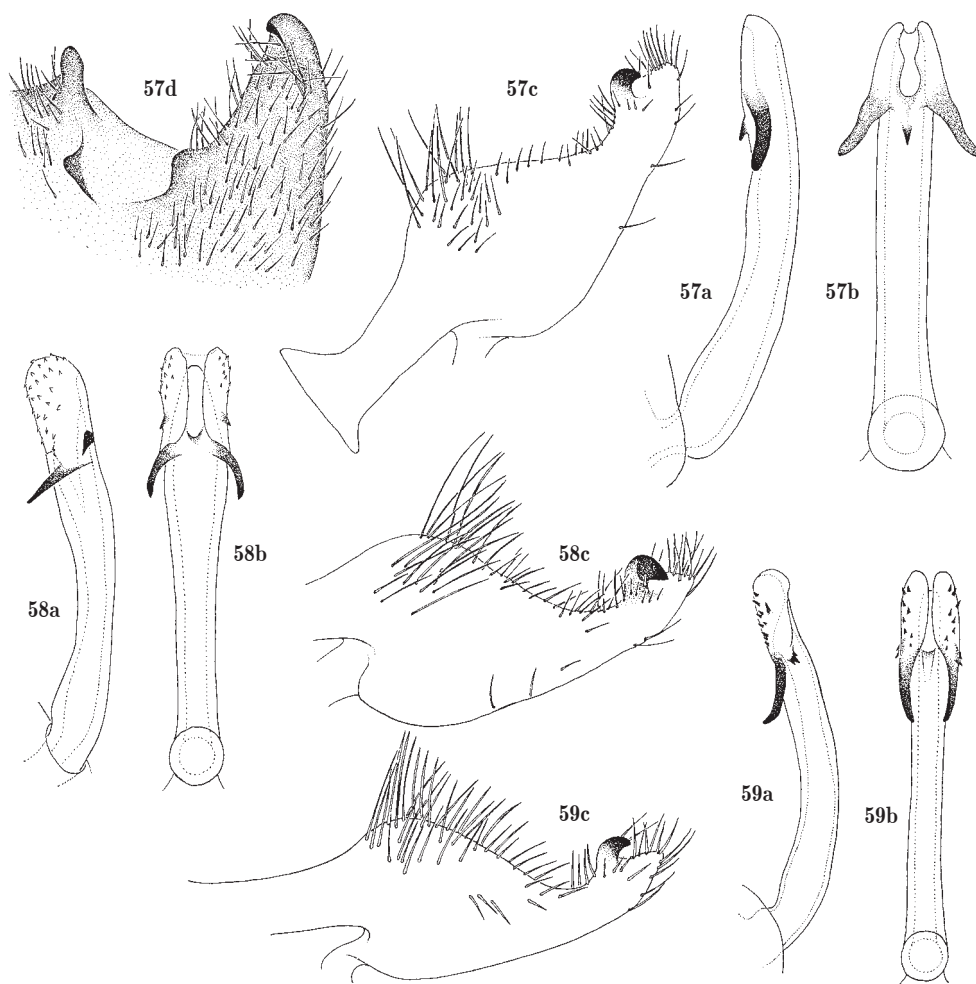
Figs 48-53.

48, *Laccogrypota grandis* (Distant) (syntype *L. laqueus* Breddin). 49, *L. praetor* (Jacobi) (syntype, parasitized, see 'Biology') (a, b sculpture omitted). 50, *L. praelata* (Jacobi) (syntype; a, c: sculpture omitted): c aedeagus, posterior view. 51, *L. pulchra* Schmidt (syntype) (a sculpture omitted; c). 52, *L. inca* Schmidt (syntype *Ischnorhina partita* Jacobi; a: sculpture omitted). 53, *L. valida* (Distant) (Guyana, Canister Falls).



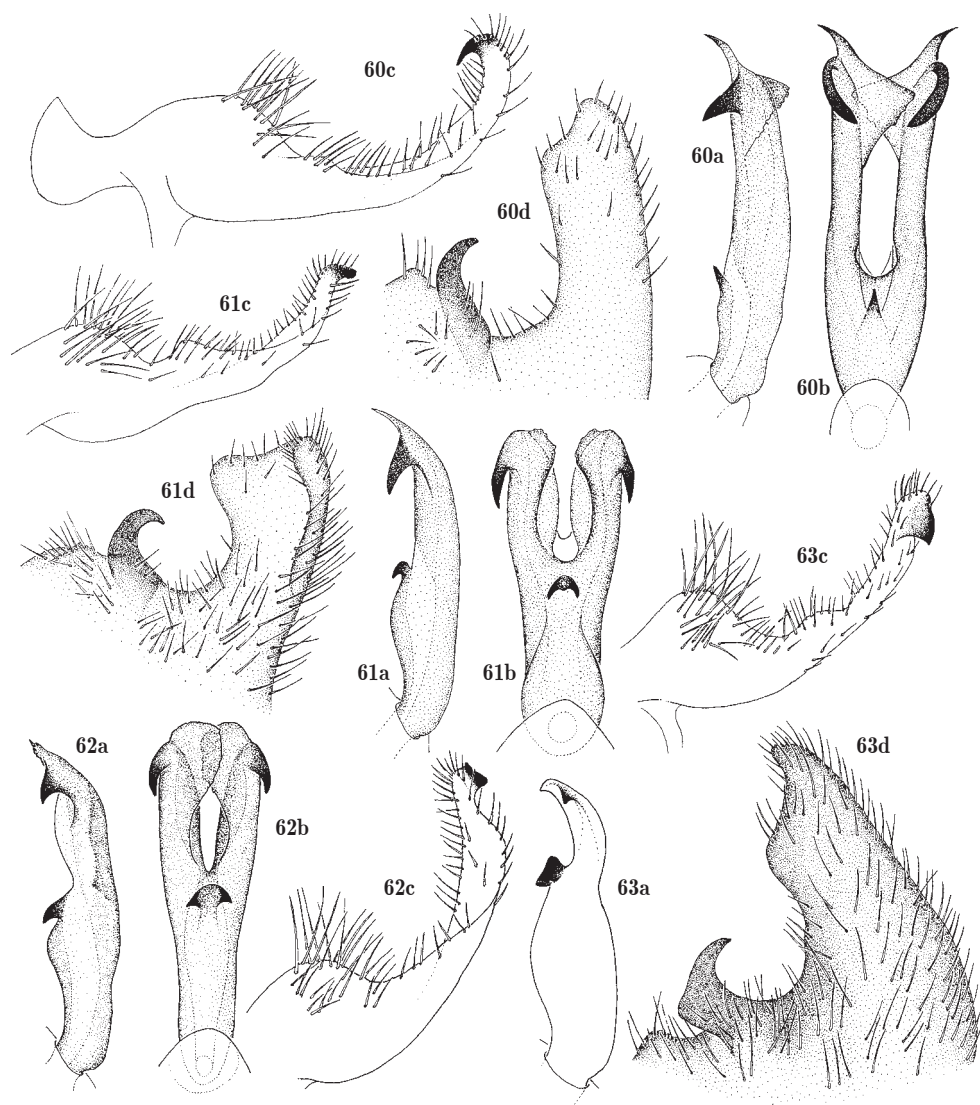
Figs 54-56.

54, *Neomonecphora laurentana* Lallemand (syntype). 55, *N. lunulata* (Lallemand) (syntype). 56, *Baetkia compressa* (Le Peletier & Serville) (Cayenne).



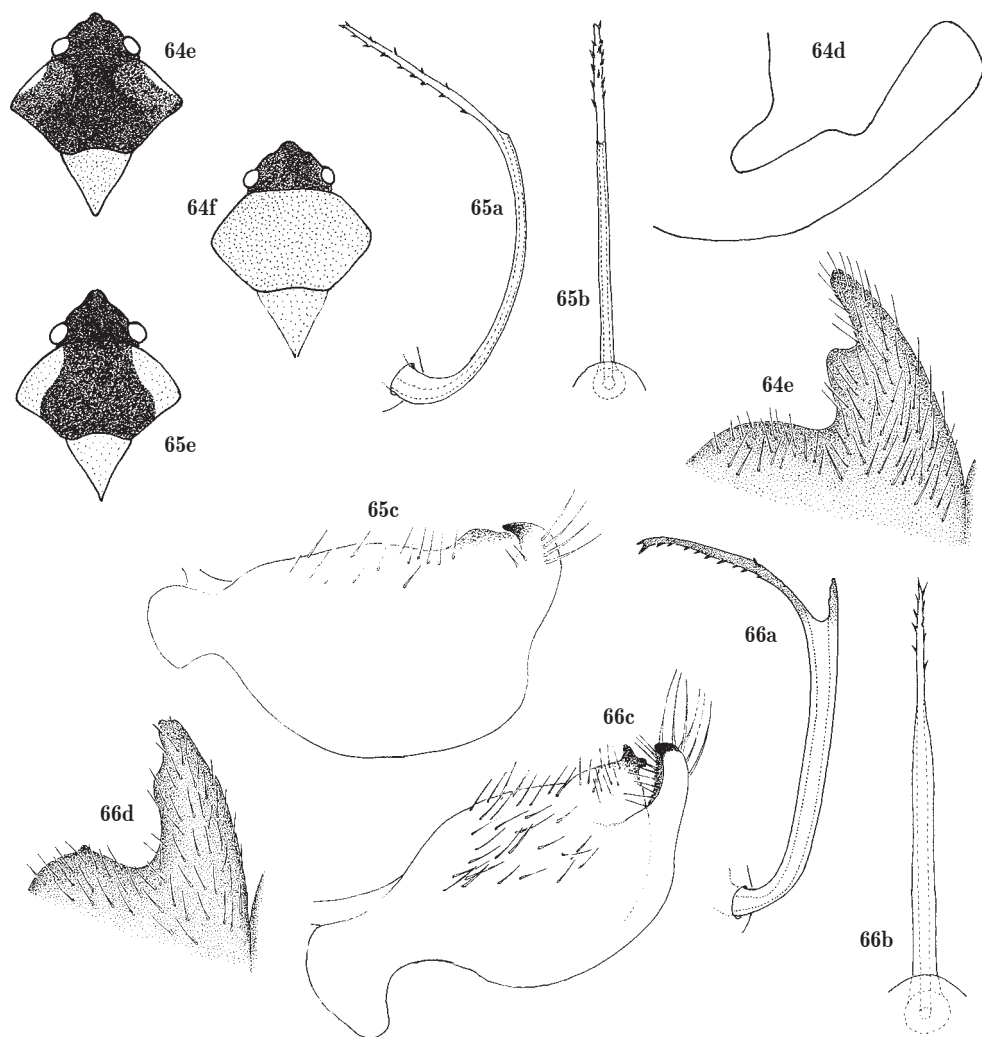
Figs 57-59.

57, *Schistogonia cercopoides* (Walker) (holotype). 58, *S. neglecta* Nast (holotype). 59, *S. sanguinea* (Fabricius) (no locality, 'Distant coll.').



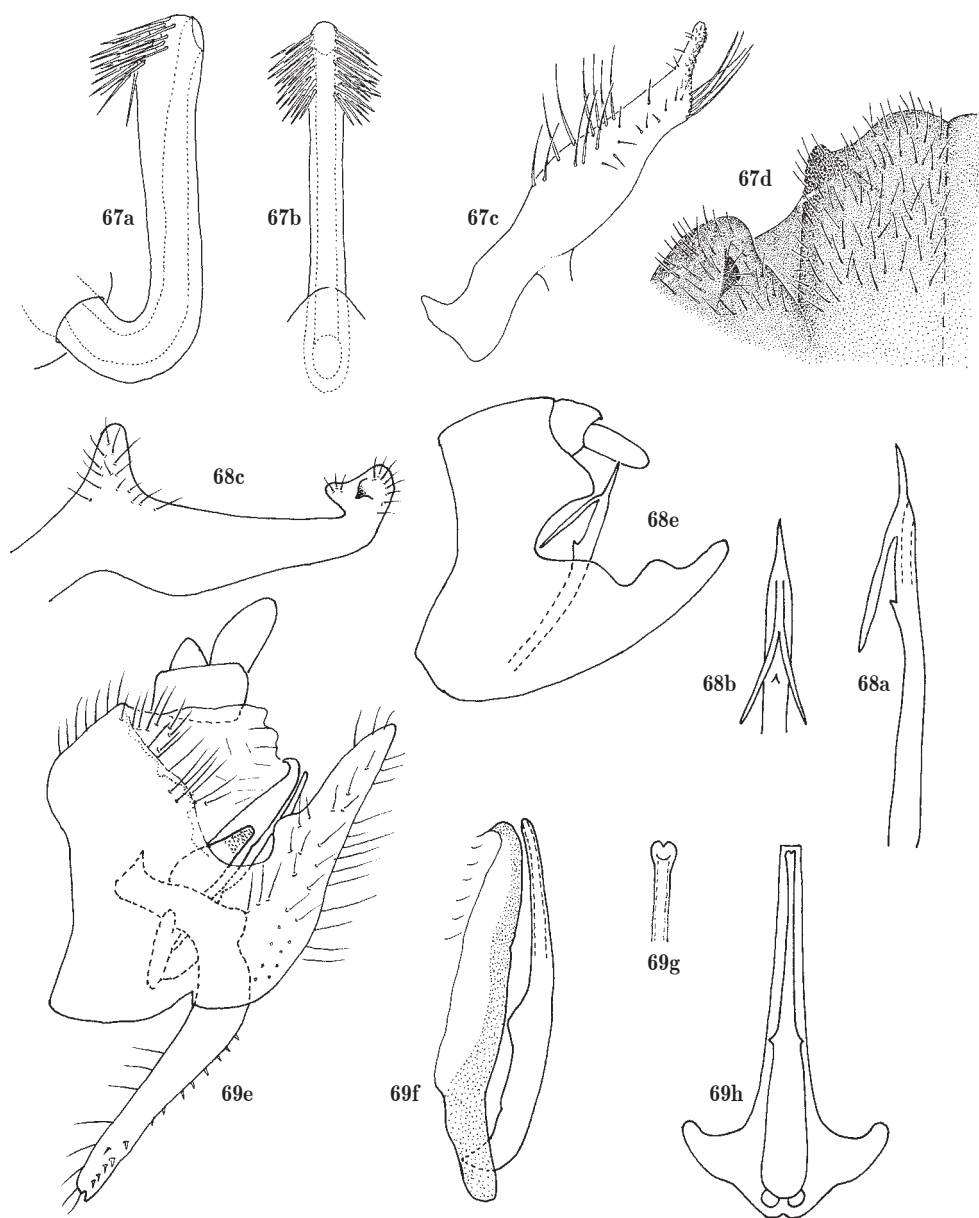
Figs 60-63.

60, *Neolaccogrypota brunnea* Lallemand (? , see check-list) (Colombia, Medellin). 61, *T. nigricans* (Lallemand) (syntype). 62, *T. rufescens* Fennah (Peru, Choquisongo). 63, *T. minor* Nast (holotype).



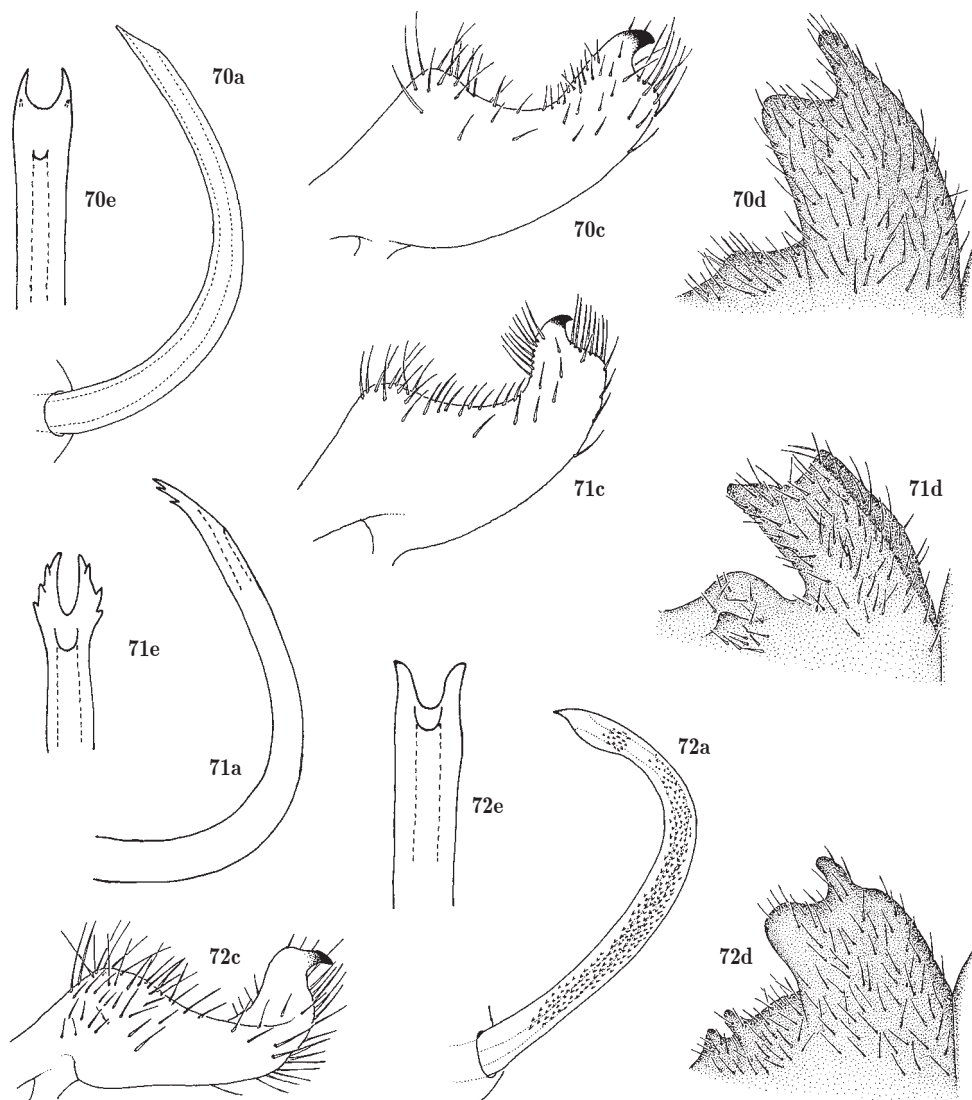
Figs 64-66.

64, *Tropidorhinella inflata* (Jacobi) (d, e lectotype; f Bolivia, N. Yungus, SMTD): d setae omitted; e, f head and thorax, dorsal view. 65, *T. montana* Schmidt (a, b: Colombia, San Luis; c, d: Ecuador, Mera; e: syntype, no data): e head and thorax, dorsal view. 66, *T. onorei* Carvalho & Webb (paratype, Ecuador, Tena).



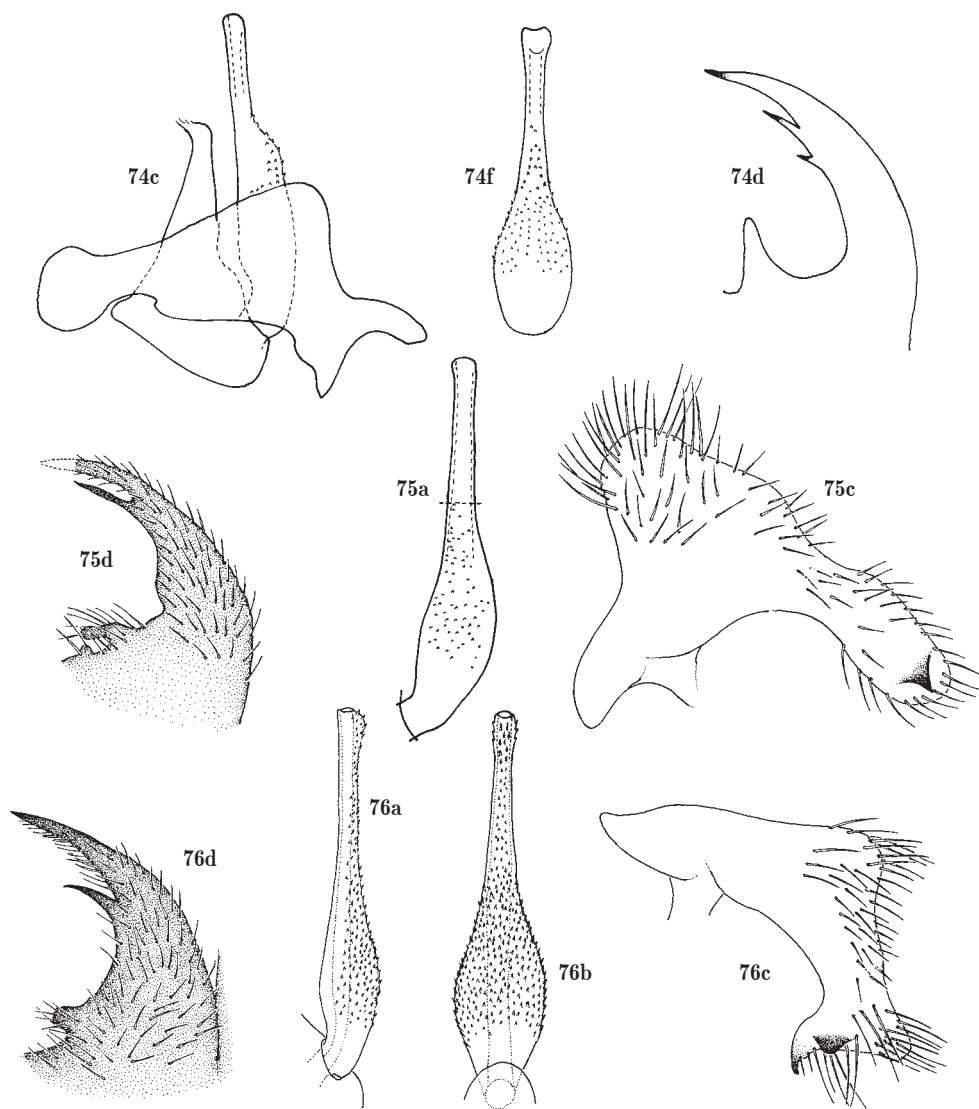
Figs 67-69.

67, *Zuata praeinitida* (Fowler) (syntype). 68, *Carachata dimorphica* Carvalho & Sakakibara (reproduced from Carvalho & Sakakibara, 1989): e male genital capsule, left lateral view. 69, *Iphirrhina sepulchralis* (Stål) (syntype): e male genital capsule, left lateral view; f aedeagus and connective, left lateral view; g apex of aedeagus, posterior view; h aedeagus and connective, posterior view.



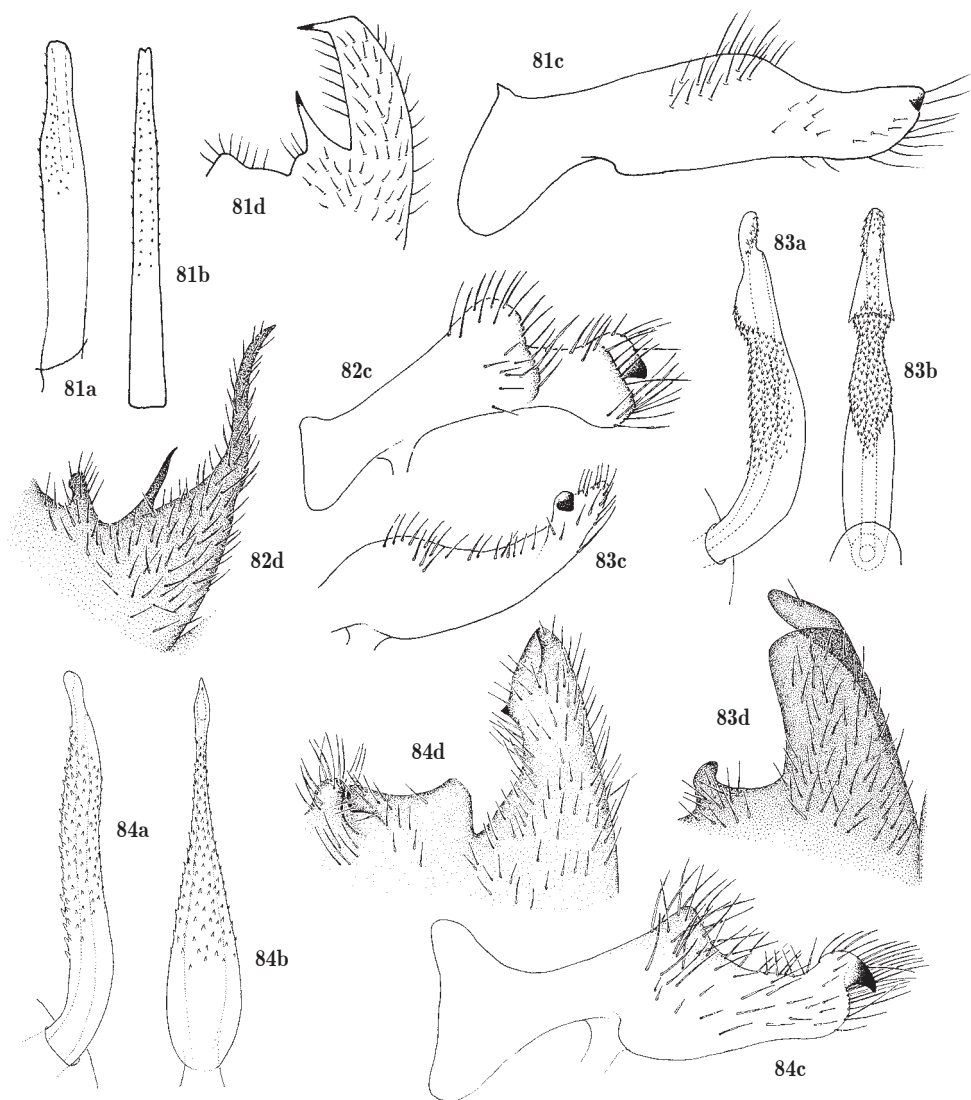
Figs 70-72.

70, *Iphirrhina quota* (Distant) (syntype). 71, *I. perfecta* (Walker) (Colombia). 72, *I. limbata* (Stål):
 e aedeagus, left lateral view (a-c Guatemala, e syntype). 73, *I. discontinua* (Fowler) (syntype).



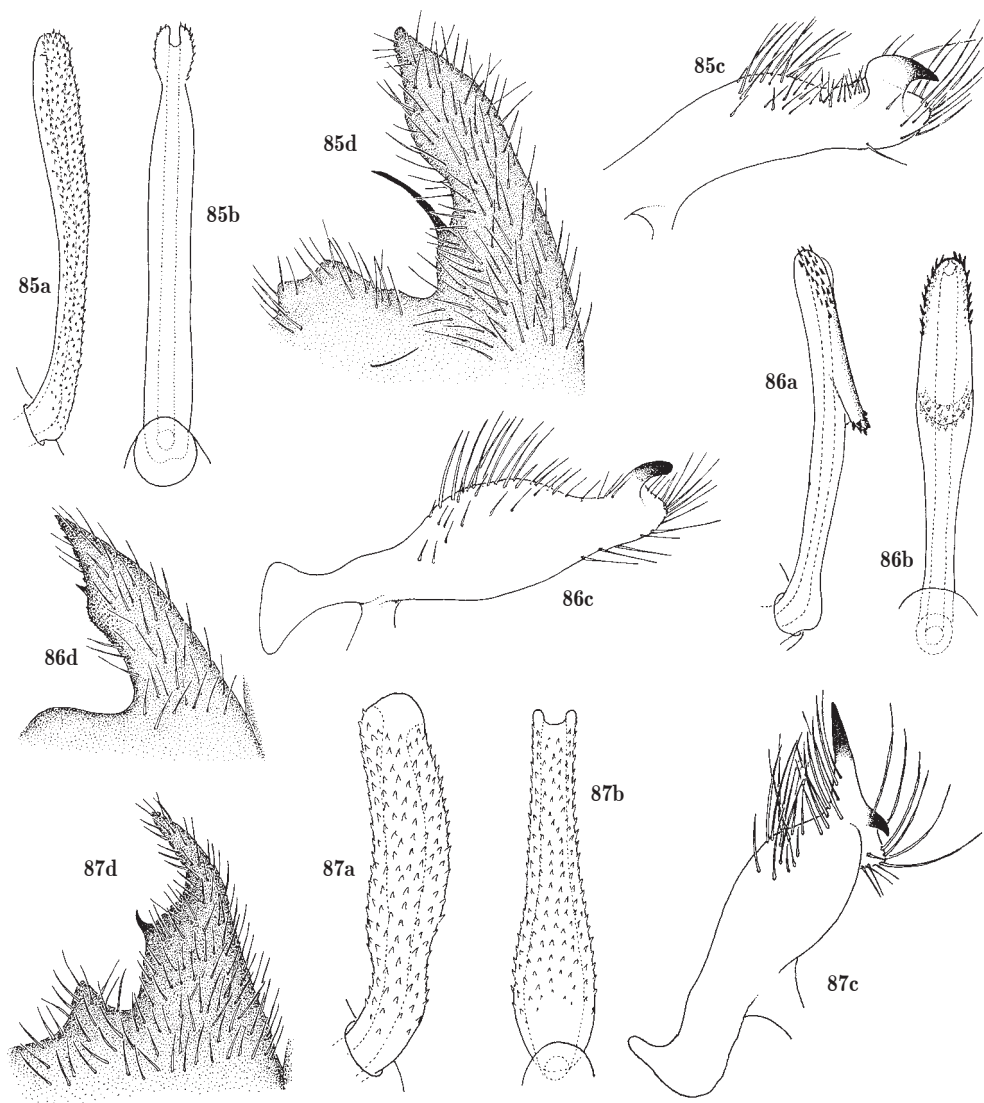
Figs 74-76.

74, *Tunaima fasciatipennis* (Stål) (syntype): e aedeagus, paramere and connective, left lateral view; f aedeagus posterior view. 75, *T. decorata* (Lallemand) (syntype): a below broken line, d subgenital plate, apex missing; (Brazil, Espírito Santo, MNHN): a shaft above broken line. 76, *T. brunneorubra* (Lallemand) (Theresopolis (handwritten)).



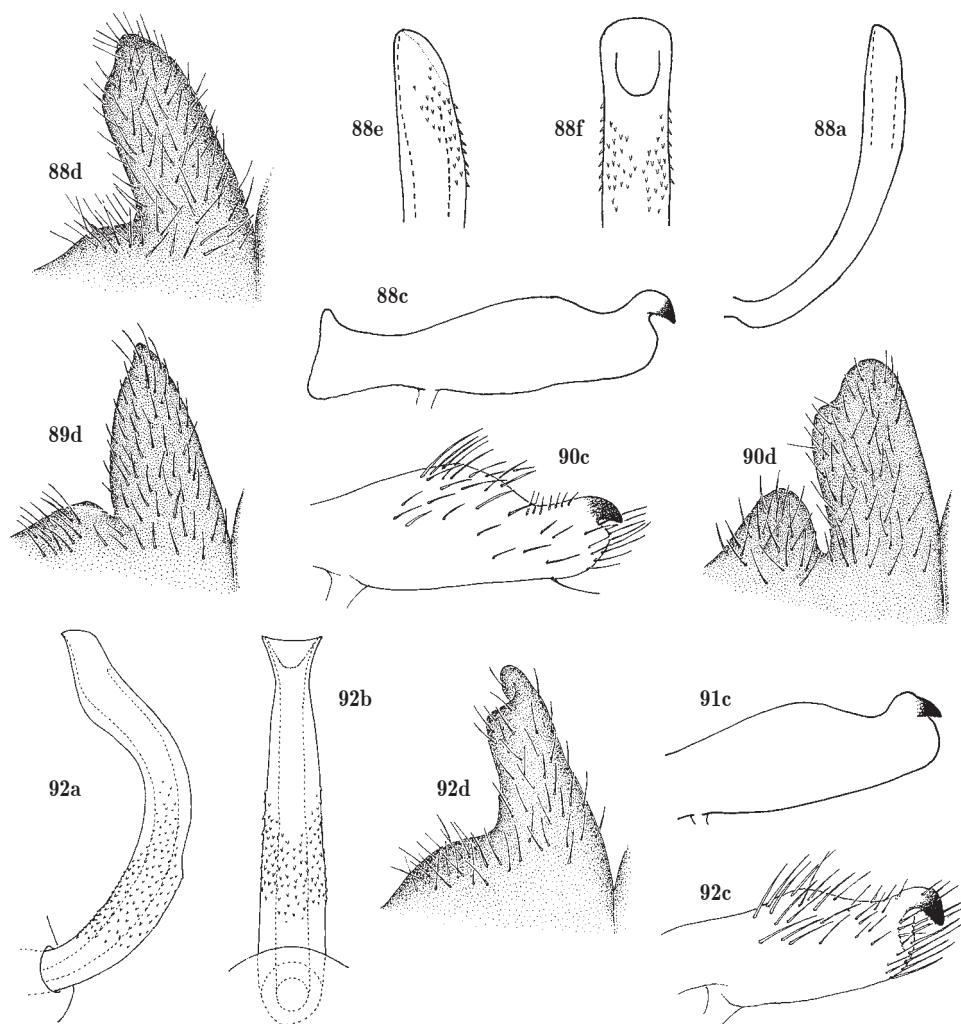
Figs 81-84.

81, *Tunaima semiflava* (Stål) (syntype). 82, *T. trifasciata* (Lallemand) (syntype). 83, *Notozulia entreriana* (Berg) (Argentina, Tucuman). 84, *Choconta juno* (Distant) (syntype).



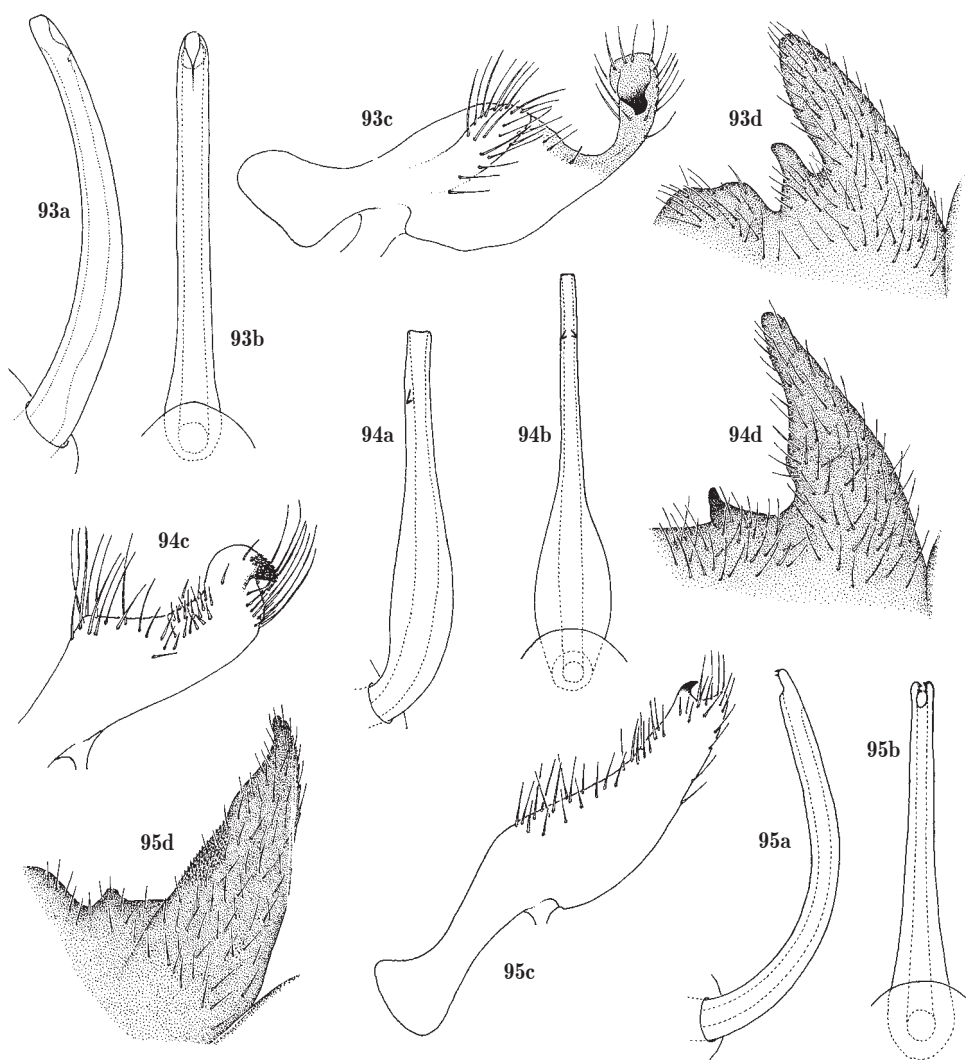
Figs 85-87.

85, *Catrimania semivitrea* (Walker) (Brazil, Mato Grosso). 86, *C. longula* (Lallemand) (Brazil, Cerrado). 87, *Urubaxia tricolor* (Distant) (Brazil, Sta. Catharina).



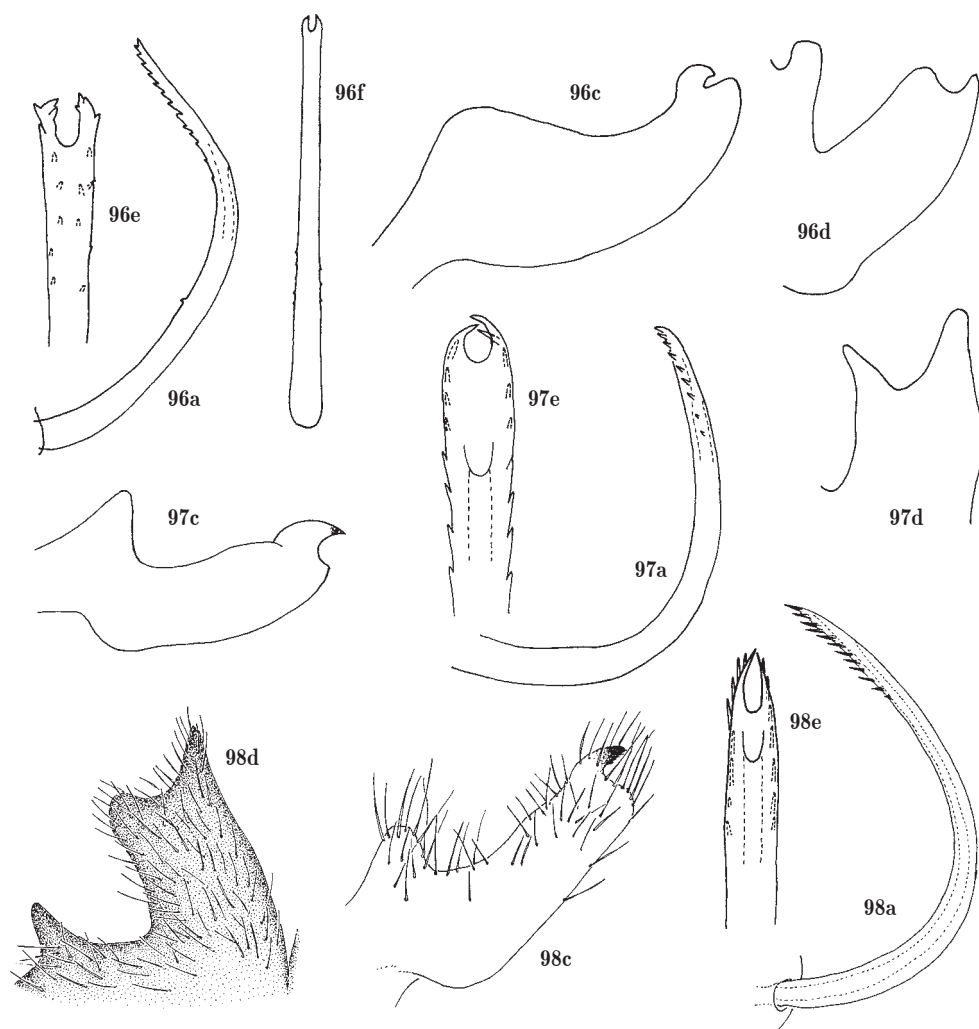
Figs 88-92.

88, *Zulia* (*Neozulia*) *vilior* (Fowler) (a, c, e, f syntype *vilior*; Panama, Bugaba; d syntype *Monecphora laevigata* Lallemant); e, f apex of aedeagus, left lateral and posterior view respectively. 89, *Z. (N.) carbonaria* (Lallemant) (syntype). 90, *Z. (N.) birubromaculata* (Lallemant) (syntype). 91, *Z. (N.) morosa* (Jacobi). 92, *Z. (Zulia) pubescens* (Fabricius) (Peru, Chanchamayo).



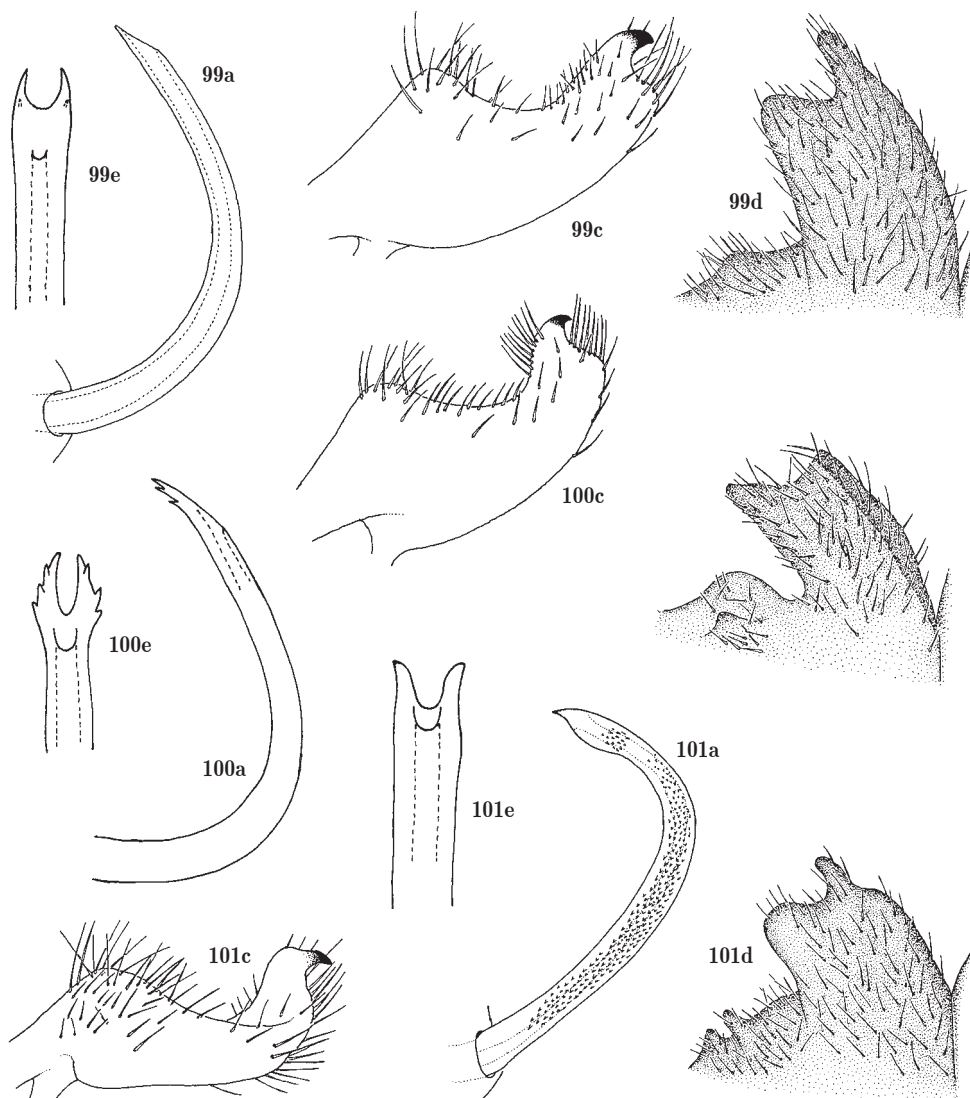
Figs 93-95.

93, *Sinopia signata* Sakakibara (Brazil, Sinop). 94, *Sphenorhina biolleyi* (Distant) (syntype). 95, *Orodamniss rhynchosporae* (China & Myers) (holotype).



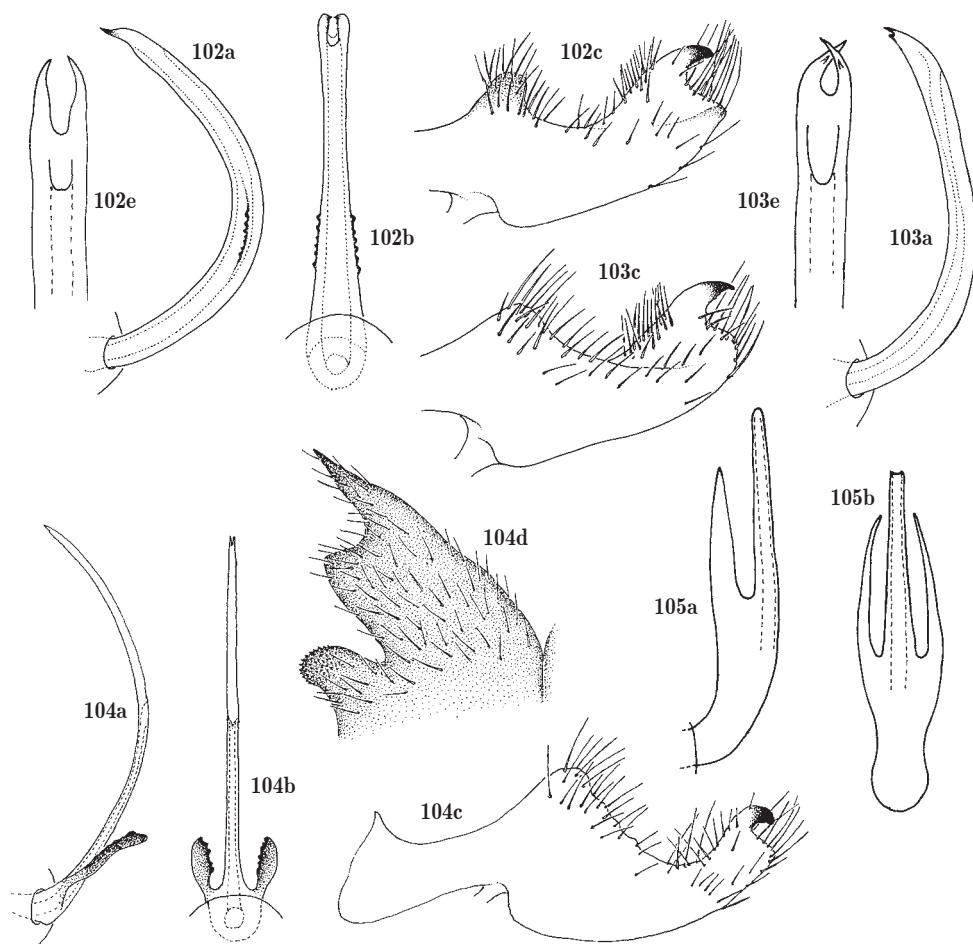
Figs 96-98 (e apex of aedeagus, posterior view).

96, *Deoisella picklesi* (China & Myers) (holotype, removed from slide mount): f aedeagus, posterior view. 97, *Deois (Deois) correntina* (Berg) (holotype). 98, *Deois (D.) knighti* Carvalho & Webb (holotype).



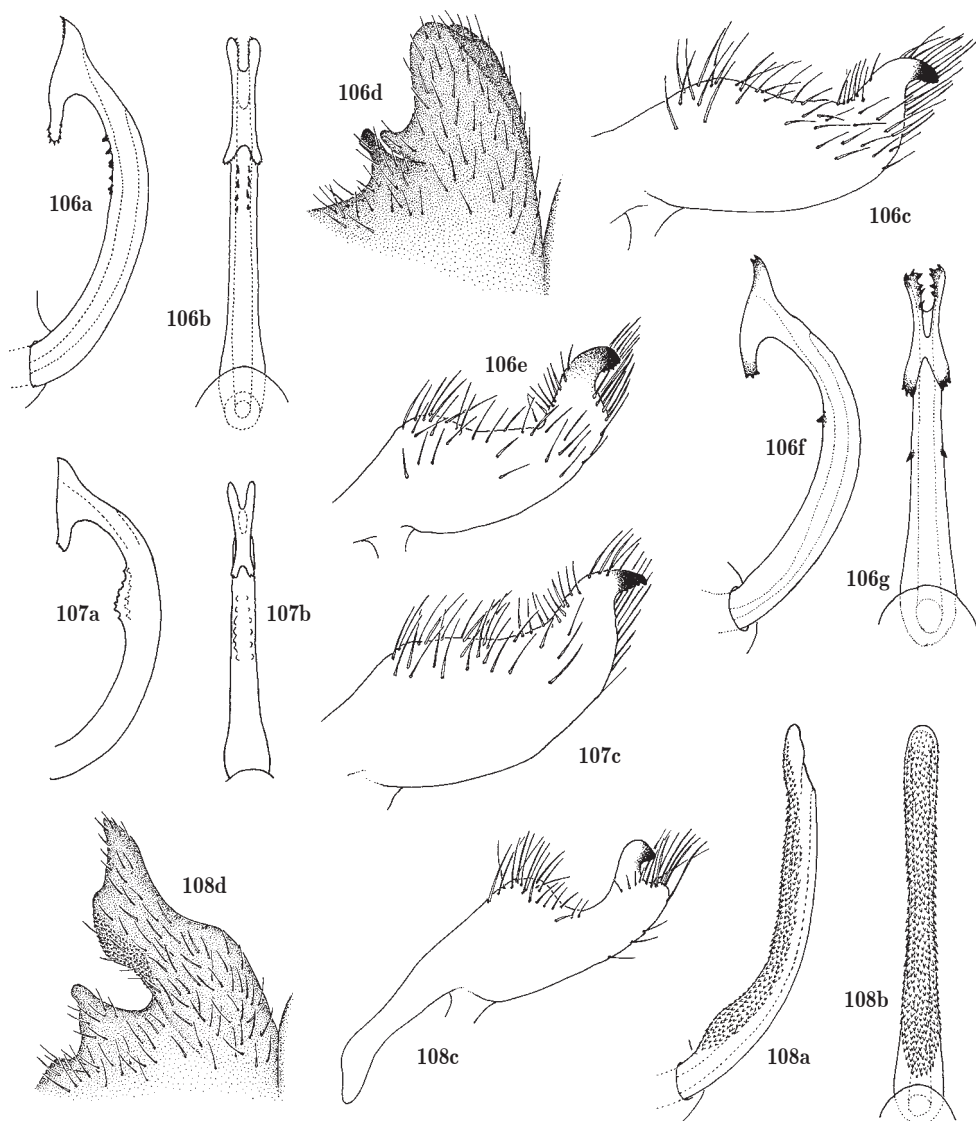
Figs 99-101 (e apex of aedeagus, posterior view).

99, *Deois (Deois) terrea* (Germar) (Argentina, Villa Ana). 100, *D. (D.) mourei* Cavichioli & Sakakibara (Brazil, Correntes). 101, *D. (D.) knoblauchii* (Berg) (Argentina, Riazó).



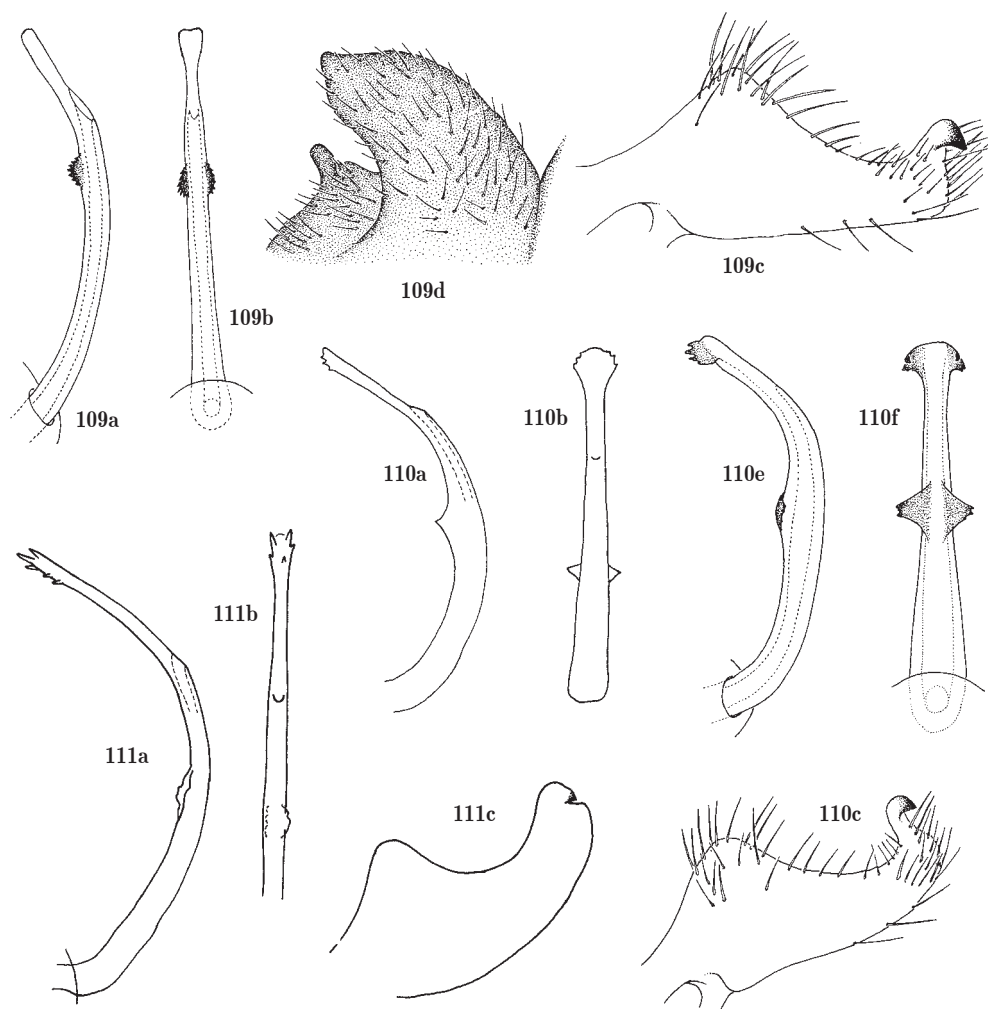
Figs 102-104 (e apex of aedeagus, posterior view).

102, *Deois (Deois) rubropicta* Sakakibara (Brazil, Mato Grosso). 103, *D. (D.) morialis* (China & Myers) (paratype). 104, *D. (D.) sexpunctata* Carvalho & Webb (holotype). 105, *D. (D.) pseudoflavopicta* (Lallemand) (Bolivia).



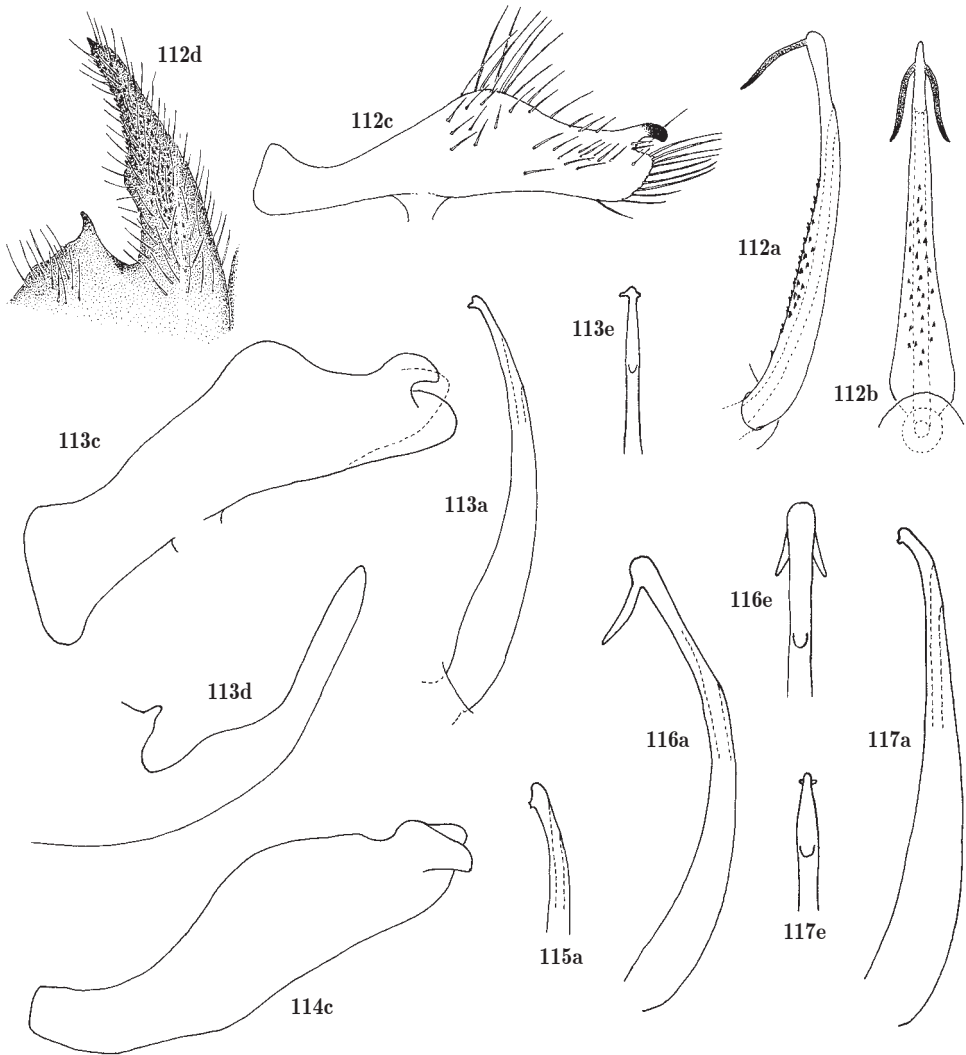
Figs 106-108.

106, *Deois* (*Acanthodeois*) *incompleta* (Walker) (a-d Brazil, Manaus, remainder from Brazil, Para): e left paramere, lateral view; f, g aedeagus, left lateral and anterior view respectively. 107, *D. (A.) flavopicta* (Stål) (a, b syntype; c Brazil, Sao Paulo). 108, *Deois* (*Fennahia*) *coerulea* (Lallemand) (syntype).



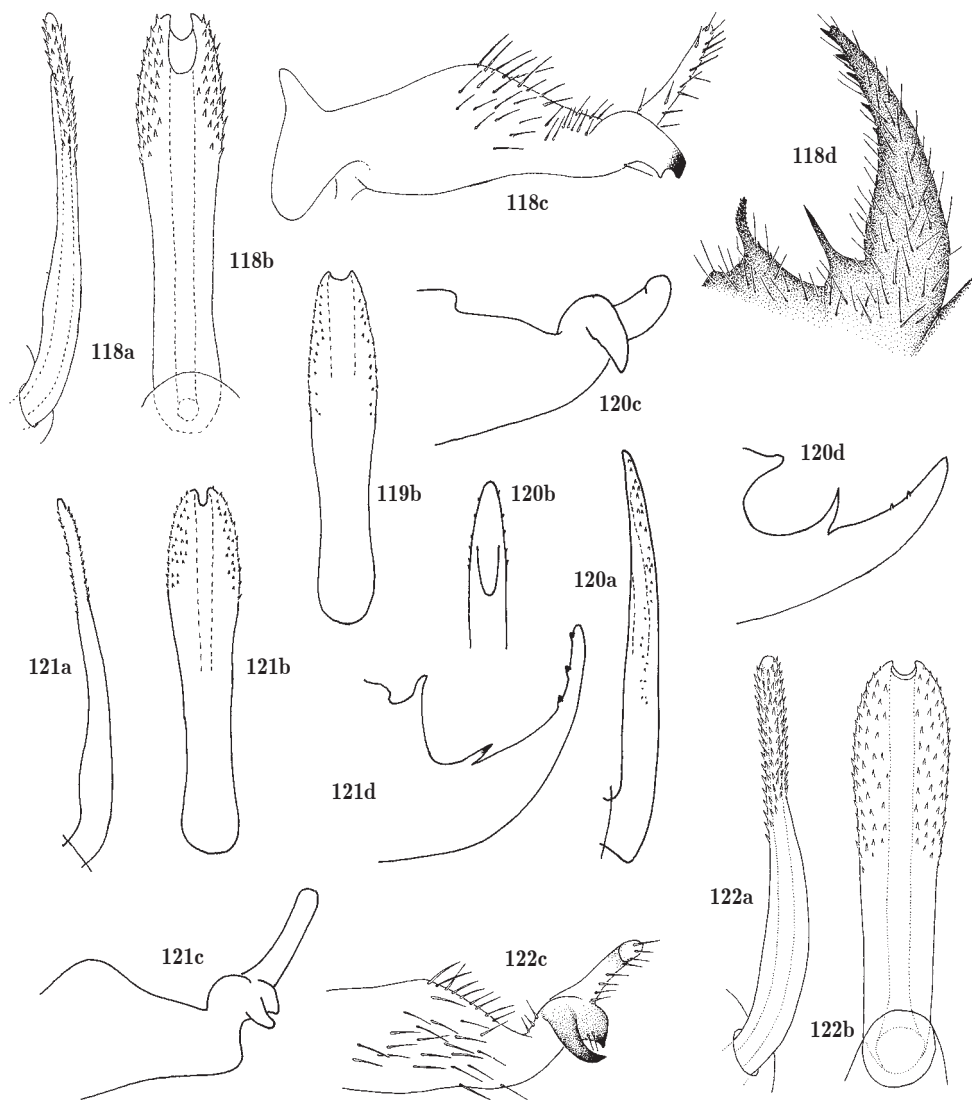
Figs 109-111.

109, *Deois (Pandysia) schach* (Fabricius) (Brazil, Nova Teutonia, a, b apex of aedeagus damaged and drawn from type). 110, *D. (P.) transiens* (Walker) (a, c Brazil, Canhotinho; e, f Brazil, Bahia, coll. Signoret (NMV)): e, f aedeagus, left lateral and posterior view respectively. 111, *D. (P.) constricta* Carvalho & Webb (holotype): e apex of aedeagus, posterior view.



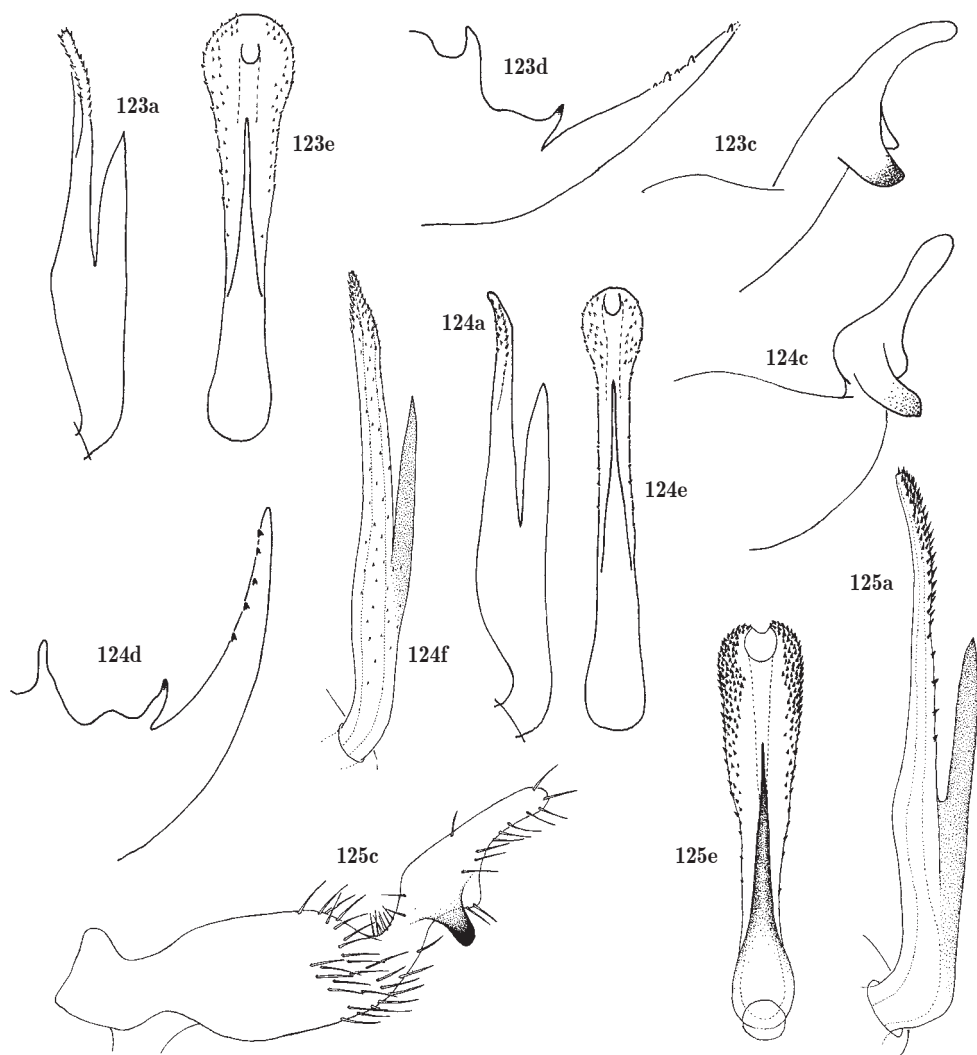
Figs 112-117 (e apex of aedeagus, posterior view).

112, *Prosapia plagiata* (Distant) (Costa Rica, Zurqui de Moravia). 113, *P. simulans* (Walker) (holotype): c broken line indicates preapical lobe position with paramere viewed more ventrally. 114, *P. simulans unifasciata* Lallemand (syntype). 115, *P. teapana* Fennah (holotype). 116, *P. latens* Fennah (syntype). 117, *P. ripalis* Fennah (holotype).



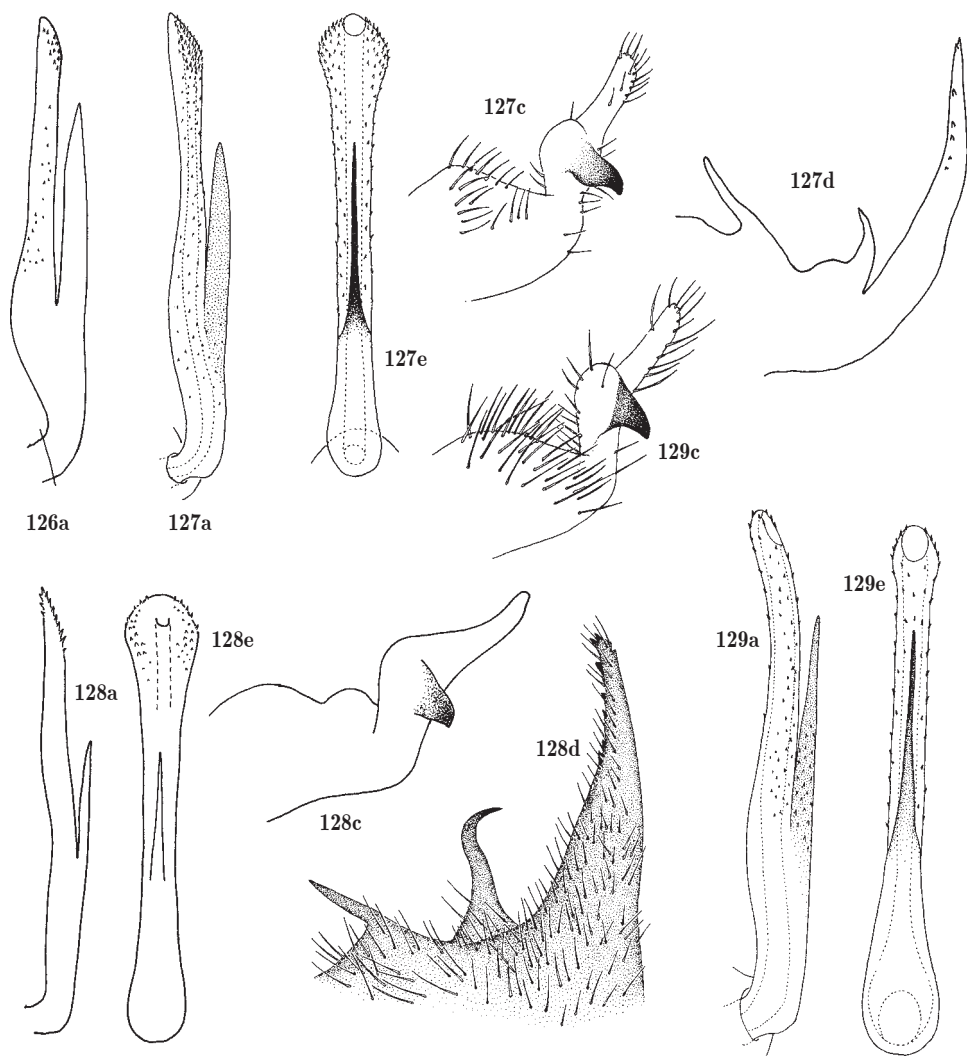
Figs 118-122.

118, *Sphenorhina minuta* Carvalho & Webb (holotype). 119, *S. coronata* Lallemand (Bolivia, Beni, NMNH). 120, *S. boliviana* (Jacobi) (syntype). 121, *S. veterana* (Jacobi) (syntype). 122, *S. fissurata* Lallemand (syntype).



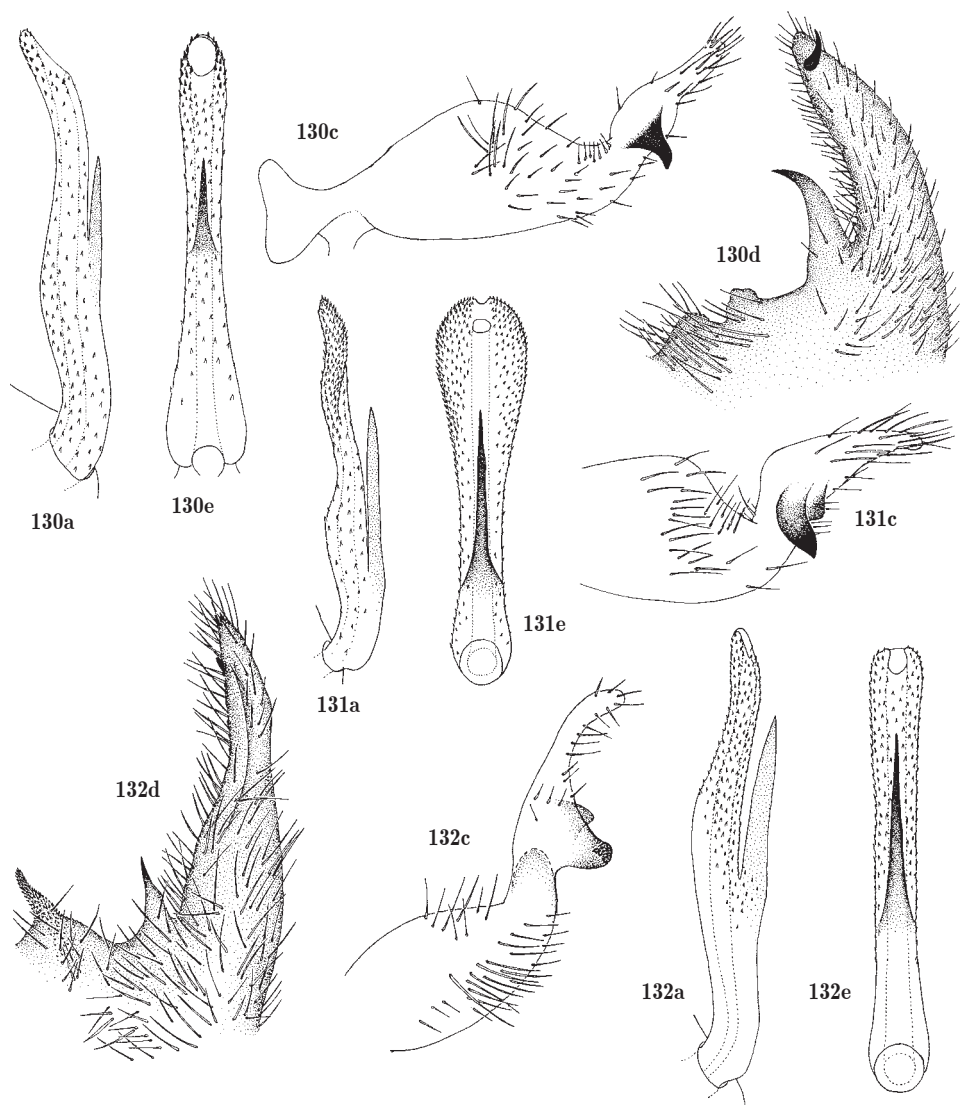
Figs 123-125 (e aedeagus, posterior view).

123, *Sphenorhina parambae* (Jacobi) (syntype). 124, *S. solita* (Melichar) (a, c-e syntype; f Peru, Callanga). 125, *S. distinguenda* (Walker) (Panama, V. de Chiriqui).



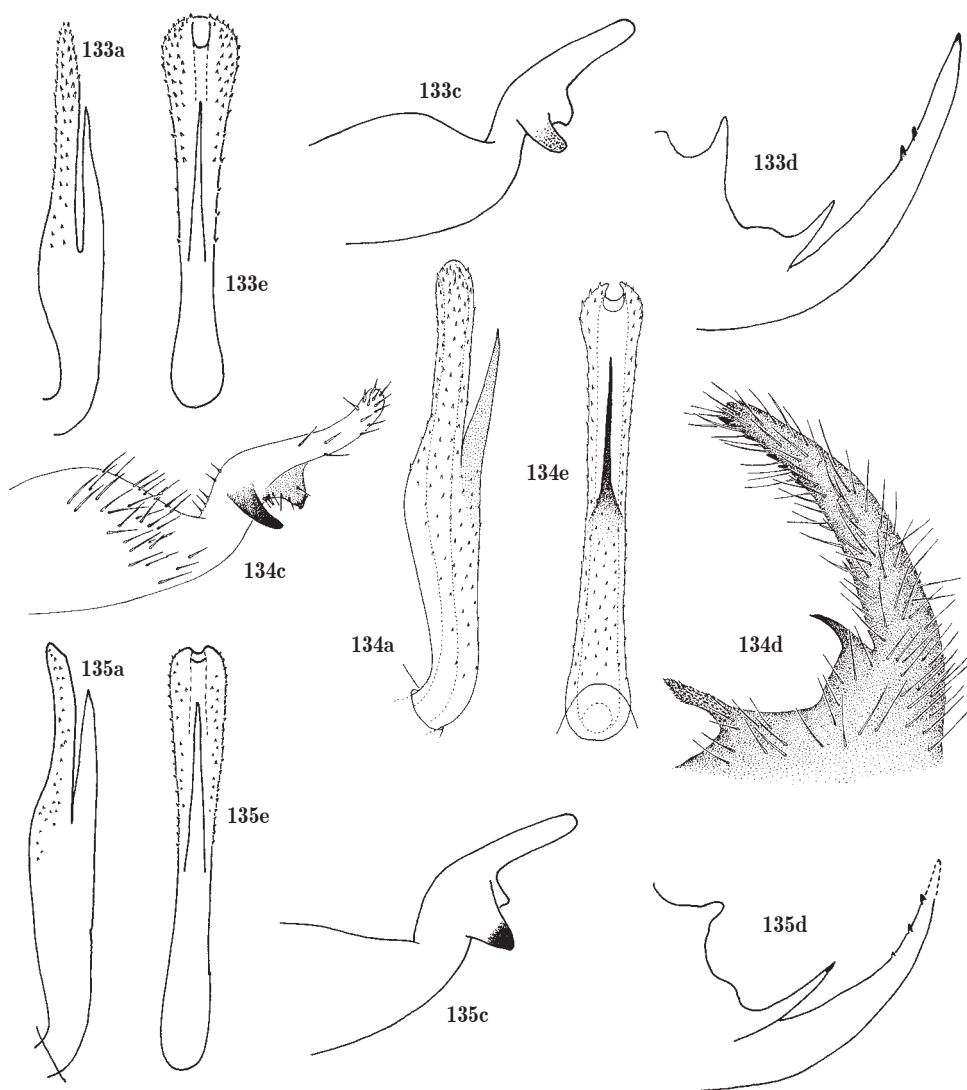
Figs 126-129 (e aedeagus, posterior view).

126, *Sphenorhina obliterata* Lallemand (paratype). 127, *S. simplex* (Walker) (syntype). 128, *S. croceofasciata* Lallemand (syntype, genitalia removed from slide mount; d from original slide mount). 129, *S. phalerata* (Jacobi) (Bolivia, Yungas del Palmar).



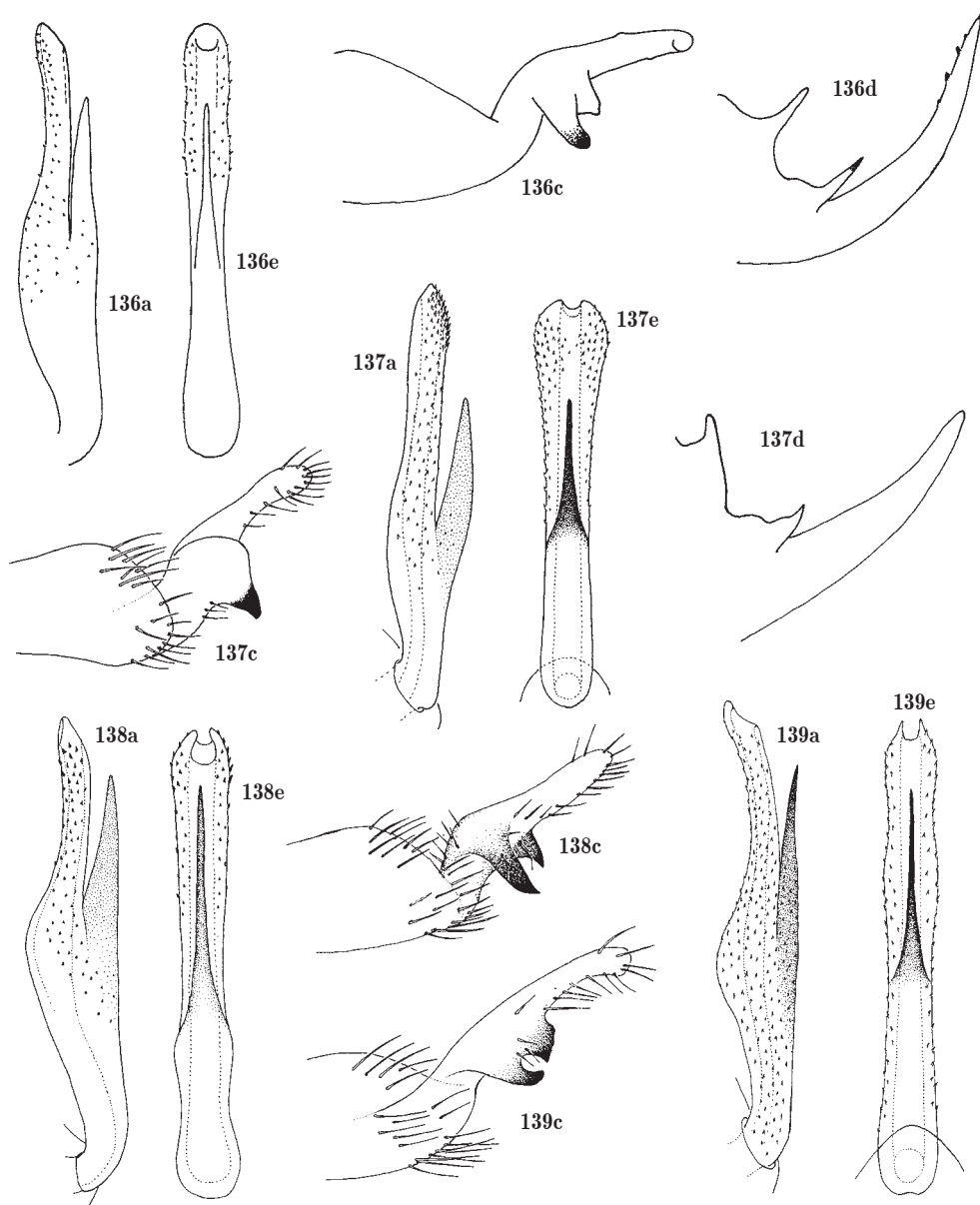
Figs 130-132 (e aedeagus, posterior view).

130, *Sphenorhina galbana* (Jacobi) (Peru, Huanuco). 131, *S. conspicua* Distant (syntype). 132, *S. pallifascia* (Walker) (syntype).



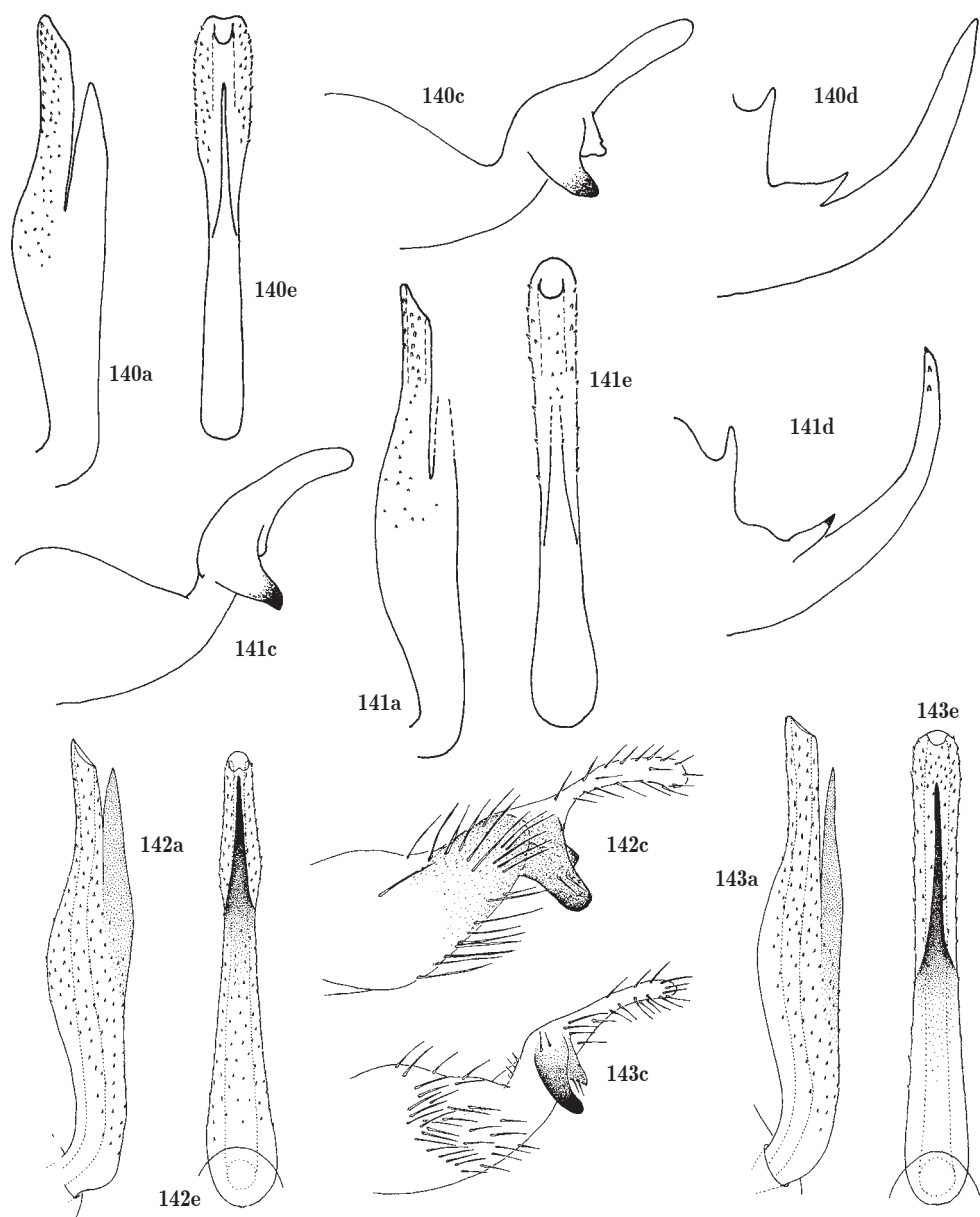
Figs 133-135 (e aedeagus, posterior view).

133, *Sphenorhina nigricephala* Carvalho & Webb (holotype). 134, *S. erigena* (Breddin) (syntype? – BMNH): f paramere ventrolateral view. 135, *S. pallida* Lallemand (lectotype).



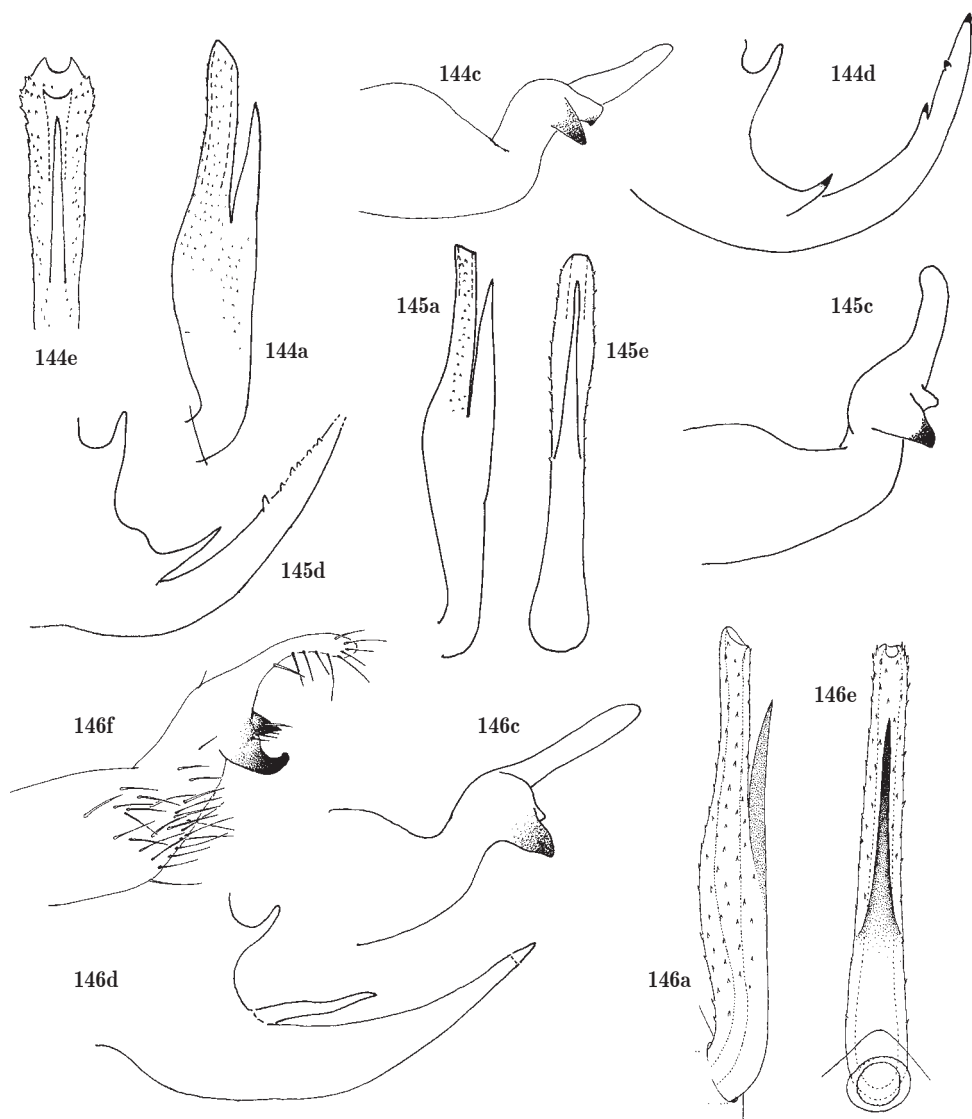
Figs 136-139 (e aedeagus, posterior view).

136, *Sphenorhina trifasciata* (Melichar) (syntype). 137, *S. quadrifera* (Jacobi) (Ecuador, Balzapamba). 138, *S. hebes* (Distant) (Bolivia, La Paz). 139, *S. proserpina* (Distant) (Bolivia, Yungas de la Paz).



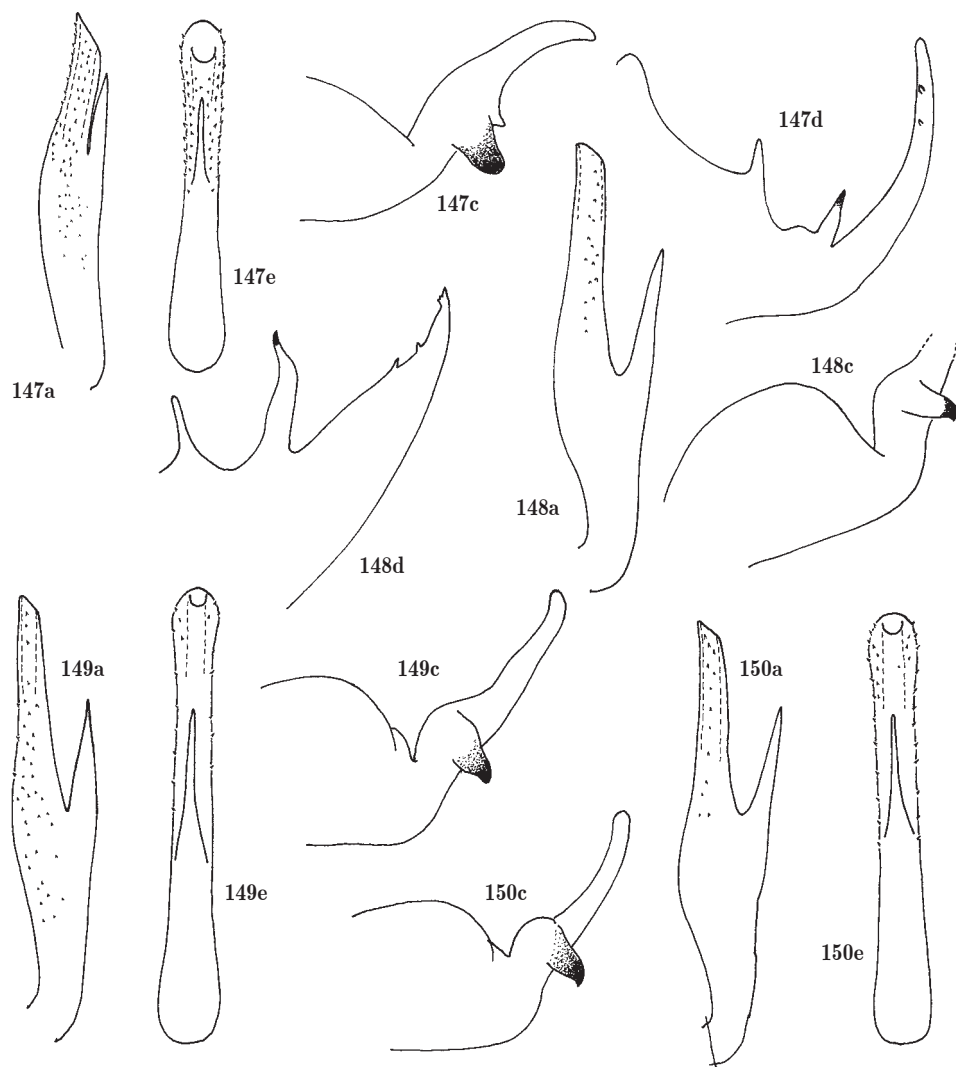
Figs 140-143 (e aedeagus, posterior view).

140, *Sphenorhina livida* (Jacobi) (syntype). 141, *S. cingula* (Melichar) (syntype, a, e: apex of posterior process missing). 142, *S. johannae* (Distant) (holotype). 143, *S. limbata* Lallemant (syntype).



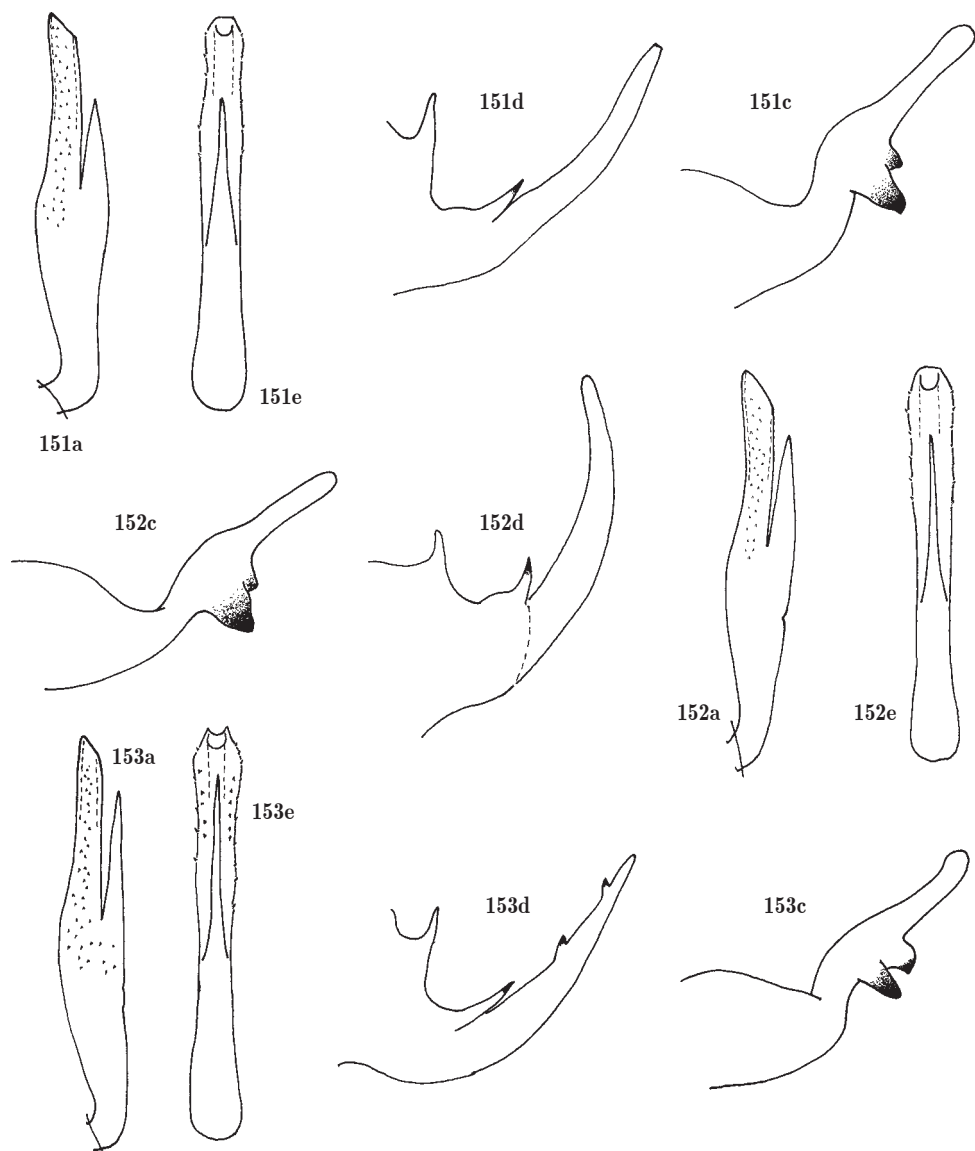
Figs 144-146 (e aedeagus, posterior view).

144, *Sphenorhina melanoptera* (Germar) (syntype). 145, *S. emerita* (Jacobi) (syntype). 146, *S. nox* (Breddin) (Ecuador, Mera): d constructed from left and right side, f paramere, dorsolateral view.



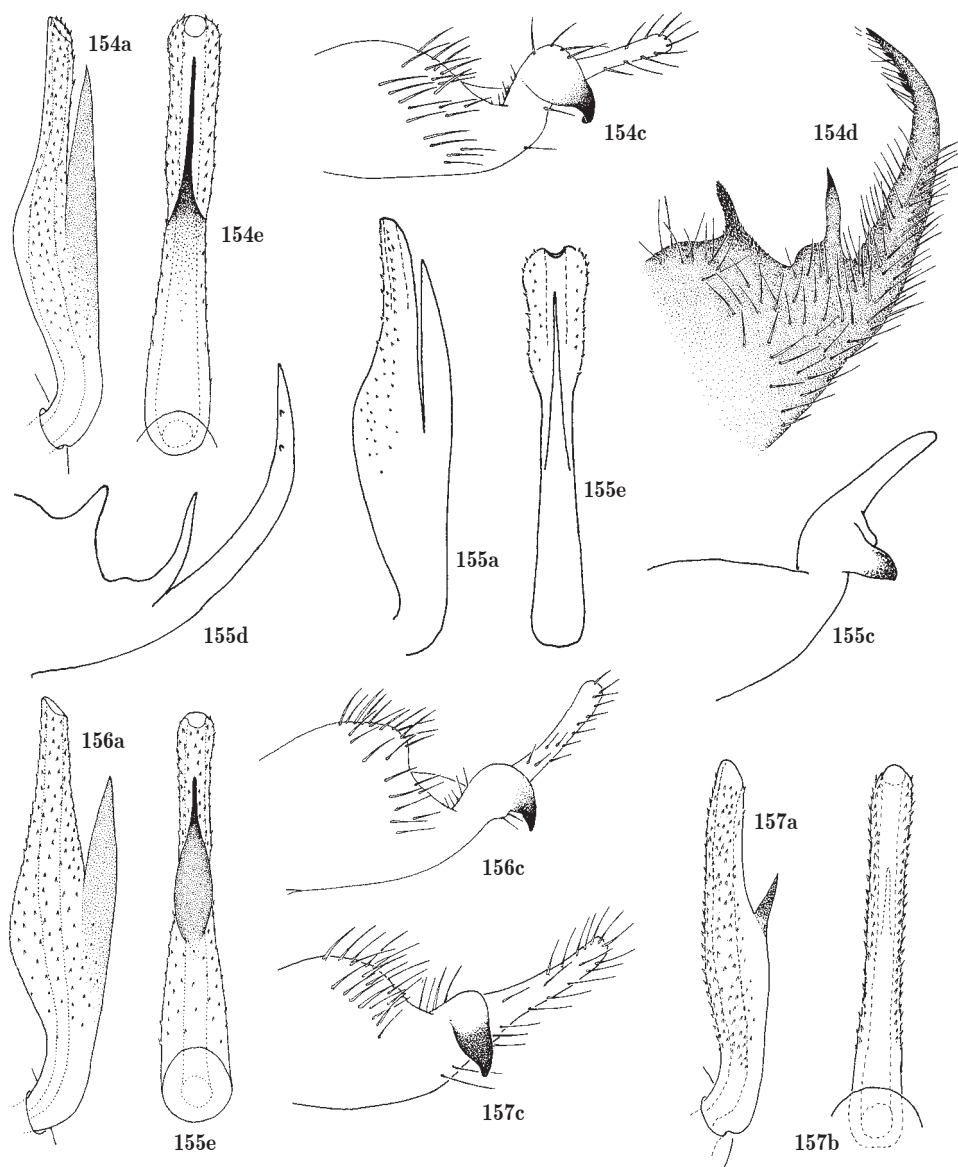
Figs 147-150 (e aedeagus, posterior view).

147, *S. aequinoctialis* (Jacobi) (syntype): d reconstructed. 148, *S. clarivenosa* (Jacobi) (Equador, Camelos, from slide mount): d constructed from damaged left and right plates; e right paramere (reversed and reconstructed). 149, *S. huggerti* Sakakibara & Carvalho (holotype): a posterior process position corrected based on paratype). 150, *S. unifasciata* Sakakibara & Carvalho (holotype).



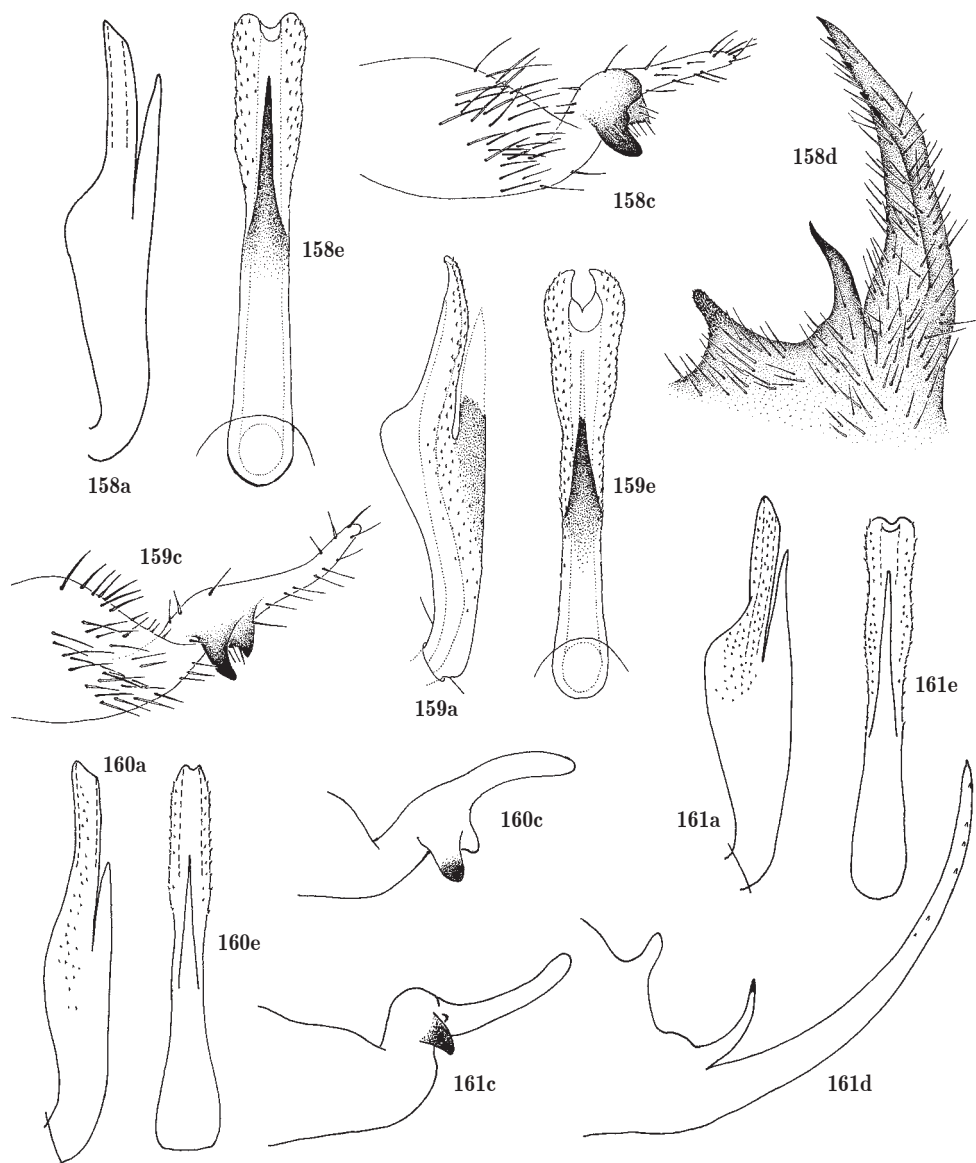
Figs 151-153 (e aedeagus posterior view).

151, *S. ruficollis* (Fallou) (syntype): d apical part of subgenital plate from right side. 152, *S. rufomaculata* (Fallou) (syntype): d reconstructed. 153, *S. rubens* Lallemand (Peru, Valle Chanchamayo).



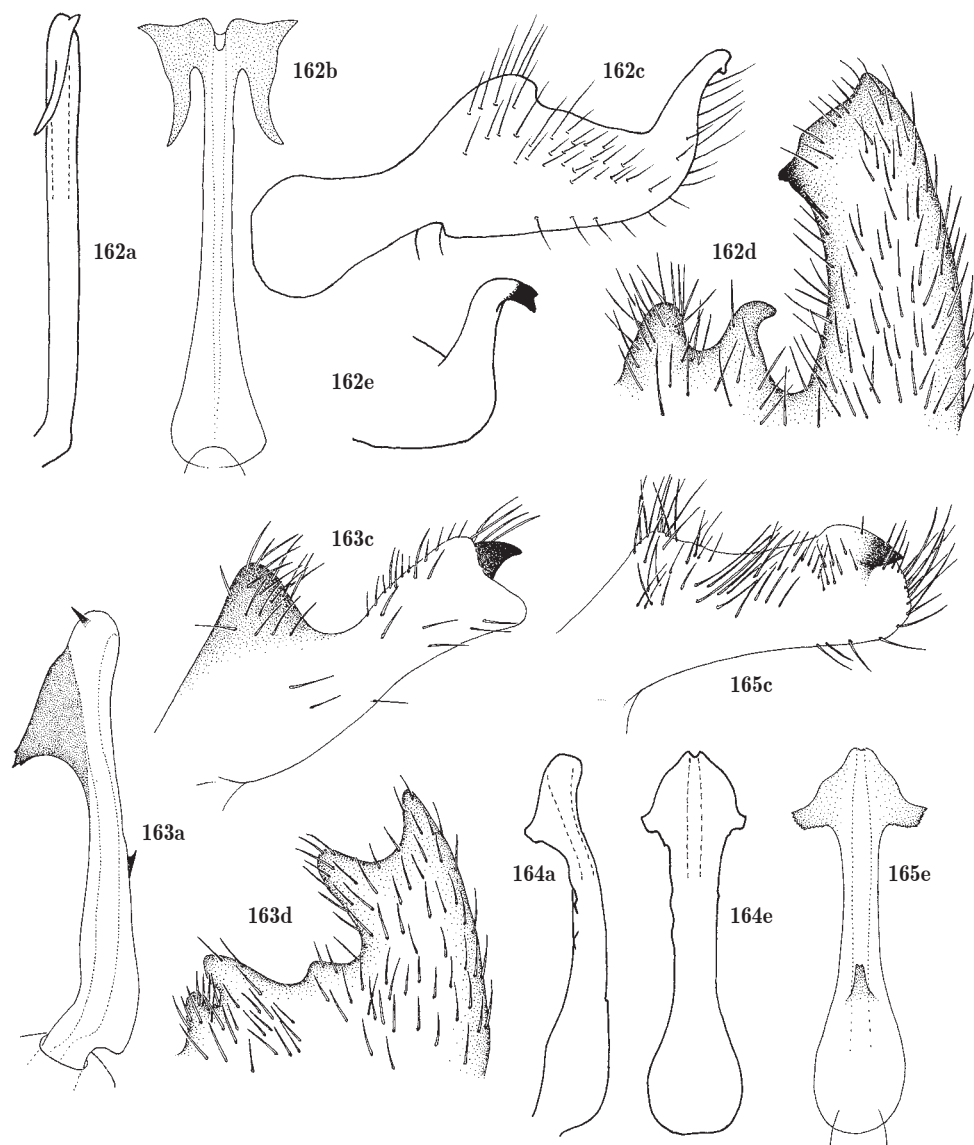
Figs 154-157 (e aedeagus, posterior view).

154, *Sphenorhina bipunctata* (Lallemand) (Peru, Callanga). 155, *S. danielssoni* Sakakibara & Carvalho (holotype). 156, *S. binotata* (Lallemand) (syntype). 157, *S. brevispina* Carvalho & Webb (holotype).



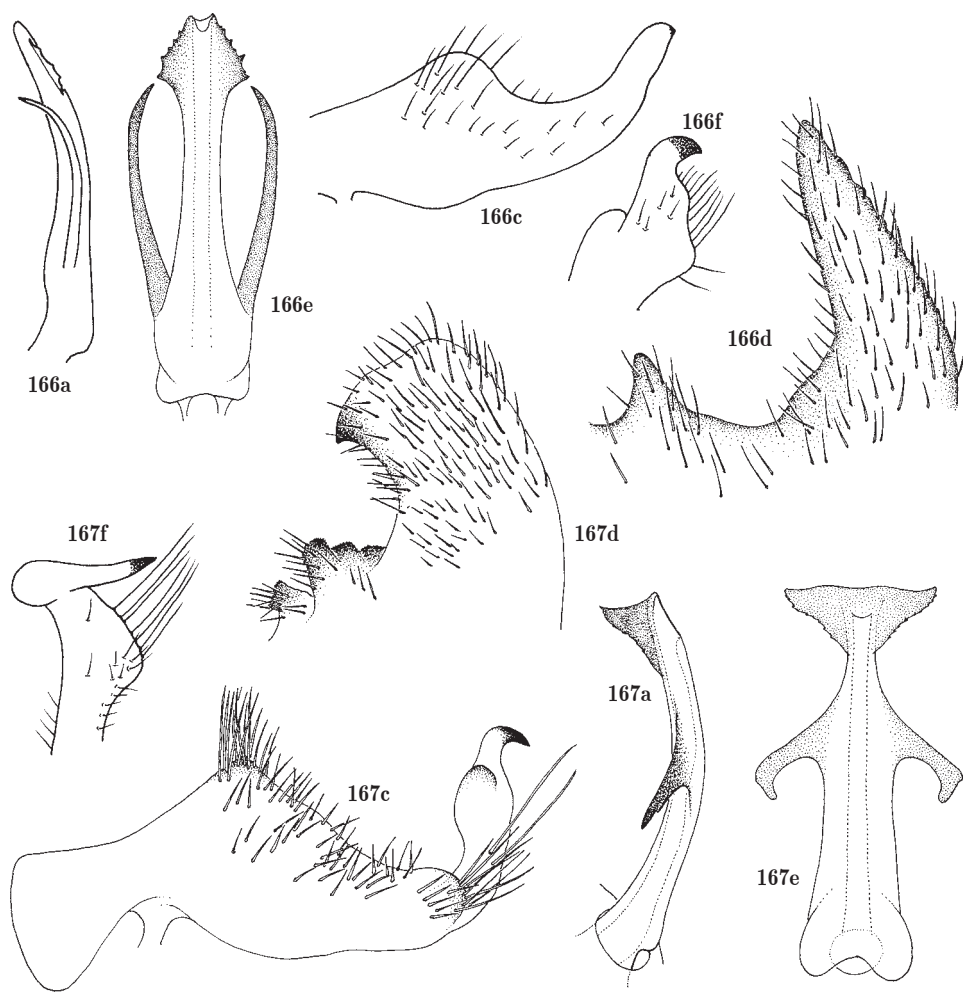
Figs 158-161 (e aedeagus, posterior view).

158, *Sphenorhina nigrotaenia* Lallemand ('Ex-Typus'). 159, *S. jacobii* (Lallemand) ('Bolivia, Lallemand collection') (apex of posterior process missing, see text). 160, *S. latifascia* Walker (Colombia, Bogota). 161, *S. rubra* (Linnaeus) (neotype).



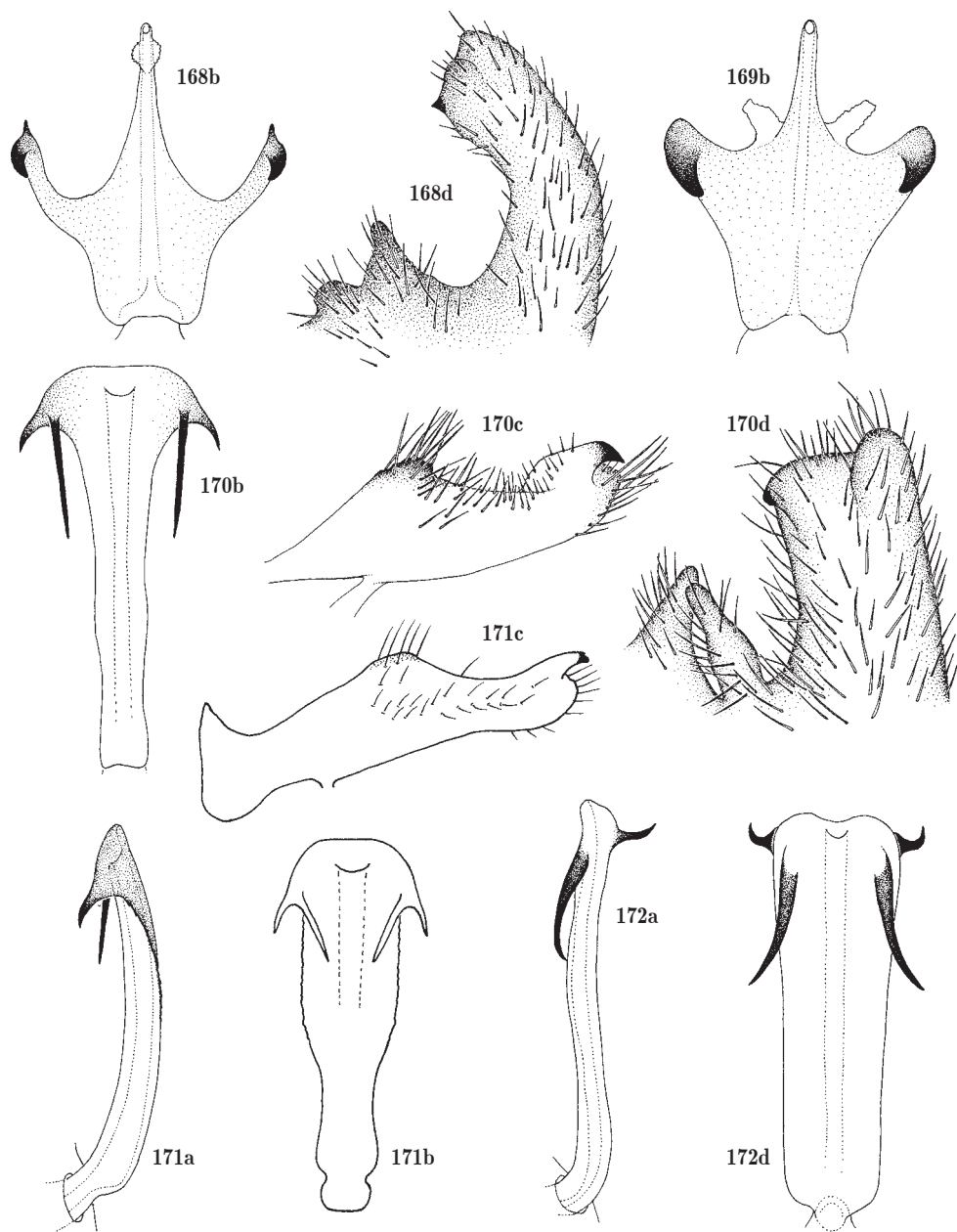
Figs 162-165.

162, *Ocoaxo confusus* (Nast) (holotype, b, d: from slide mount; a, e, c: removed from slide mount): e apex of left style, posterior view. 163, *O. imperans* (Fowler) (syntype *imperans* var. *sextotata*). 164, *O. insularis* (Lallemand) (syntypes, a from slide mount): e aedeagus, posterior view. 165, *O. digitatus* (Nast) (holotype, from slide mount): e aedeagus, posterior view.



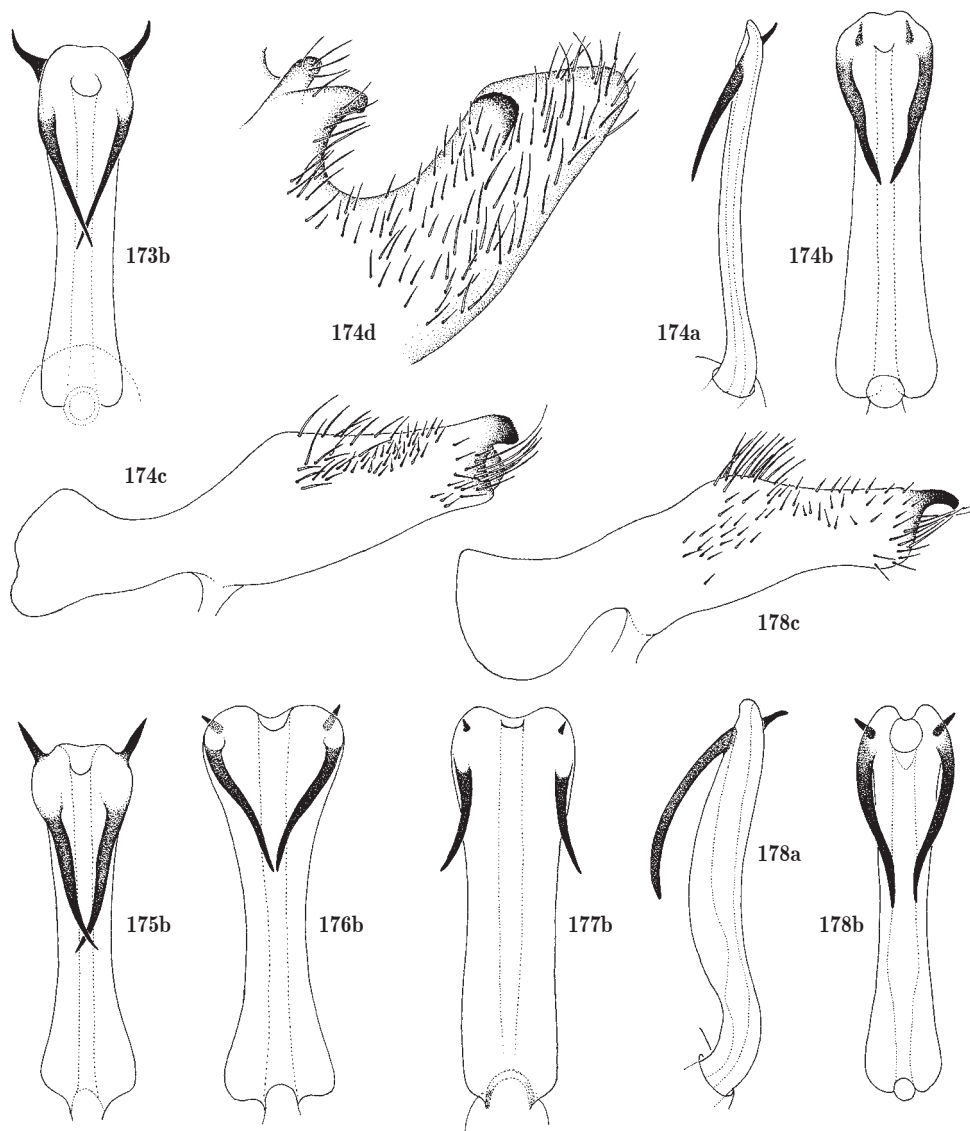
Figs 166-167.

166, *Ocoaro tullia* (Distant) (syntype, a, c, f: removed from slide mount; d, e: from slide mount): e aedeagus, posterior view; f apex of paramere, posterolateral view. 167, *O. panamensis* (Nast) (paratype): e aedeagus posterior view; f apex of paramere, posterior view.



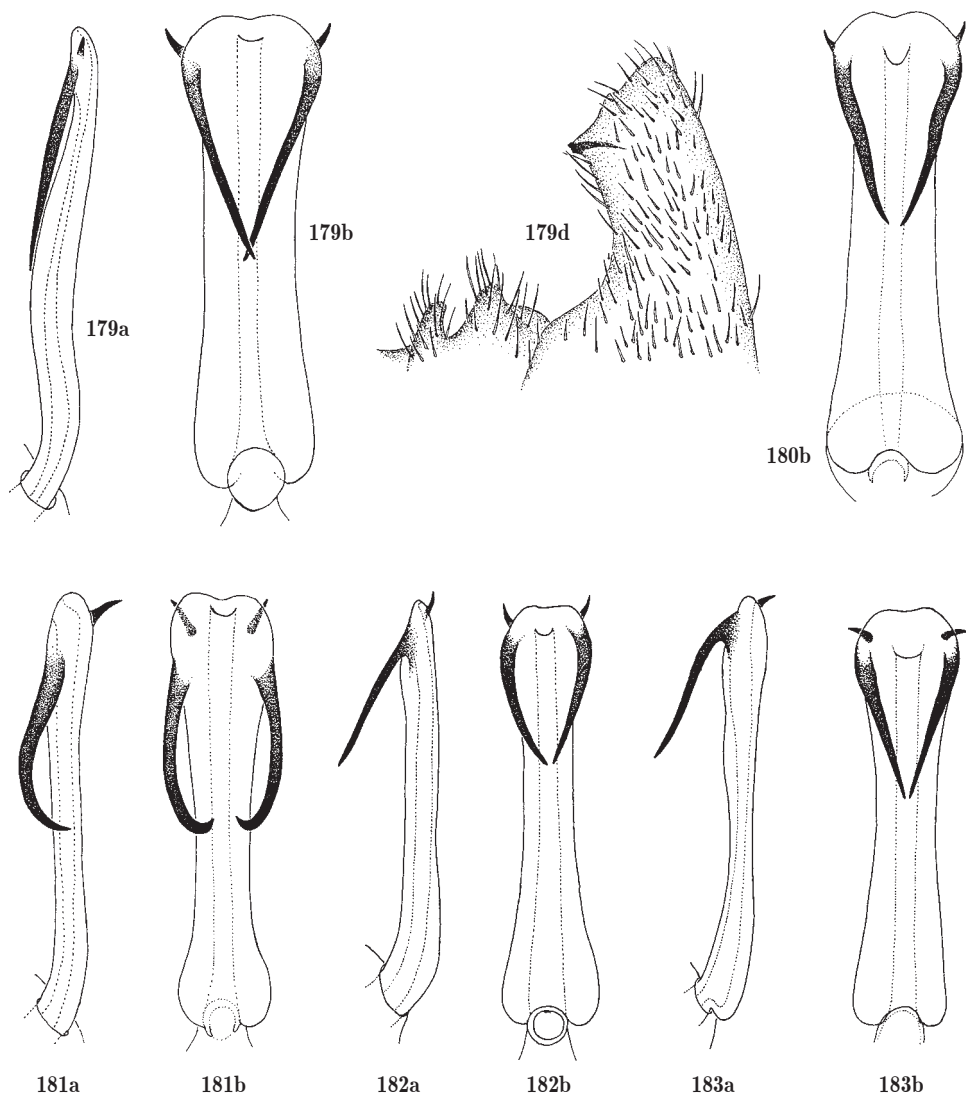
Figs 168-172.

168, *Ocoaxo cygnus* (Nast) (holotype, from slide mount). 169, *O. distans* (Nast) (holotype, from slide mount). 170, *O. tucurricae* (Lallemand) (syntype, from slide mount). 171, *O. turpior* (Fowler) (syntype, a: from slide mount; b, c: removed from slide mount). 172, *O. varians* (Stål) (Mexico, '68.4').



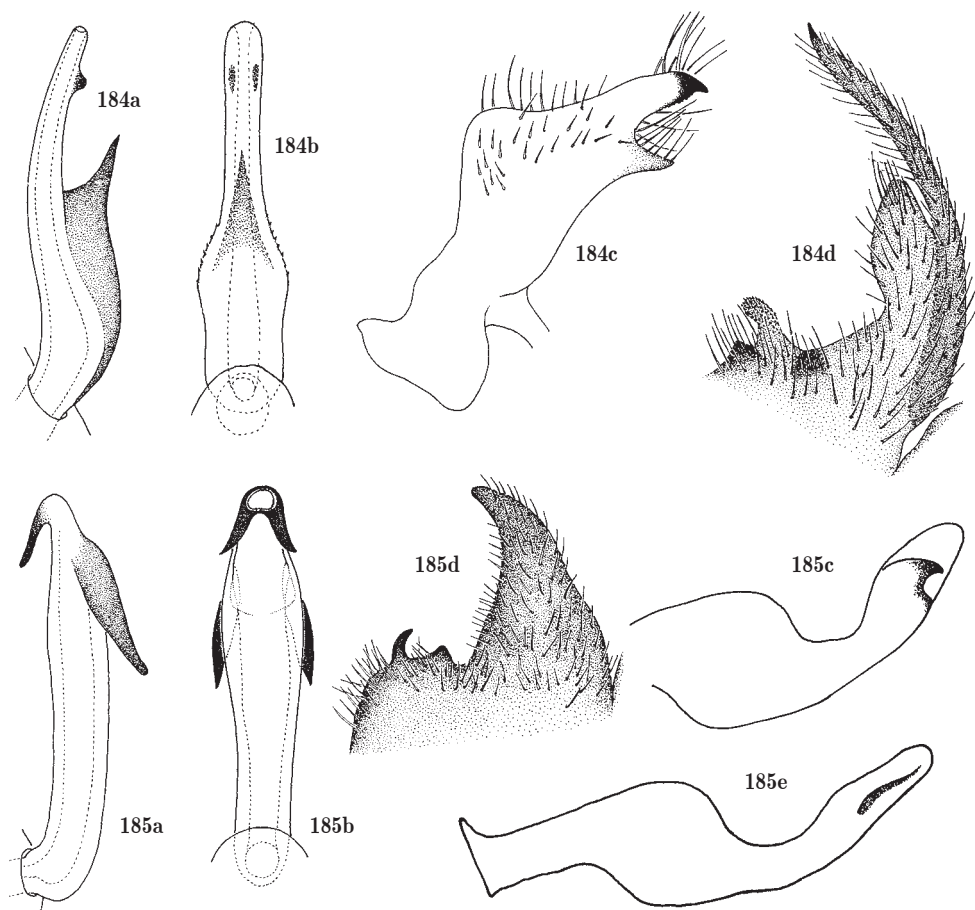
Figs 173-178.

173, *Ocoaxo fowleri* (Lallemand) (holotype, from slide mount). 174, *O. lineolatus* (Amyot & Serville) (Mexico, Temescaltepec). 175, *O. similis* (Walker) (syntype, from slide mount). 176, *O. nicaraguanus* (Nast) (holotype, from slide mount). 177, *O. bivittus* (Walker) (holotype, from slide mount). 178, *O. lineatus* (Walker) (Belize, Toledo).



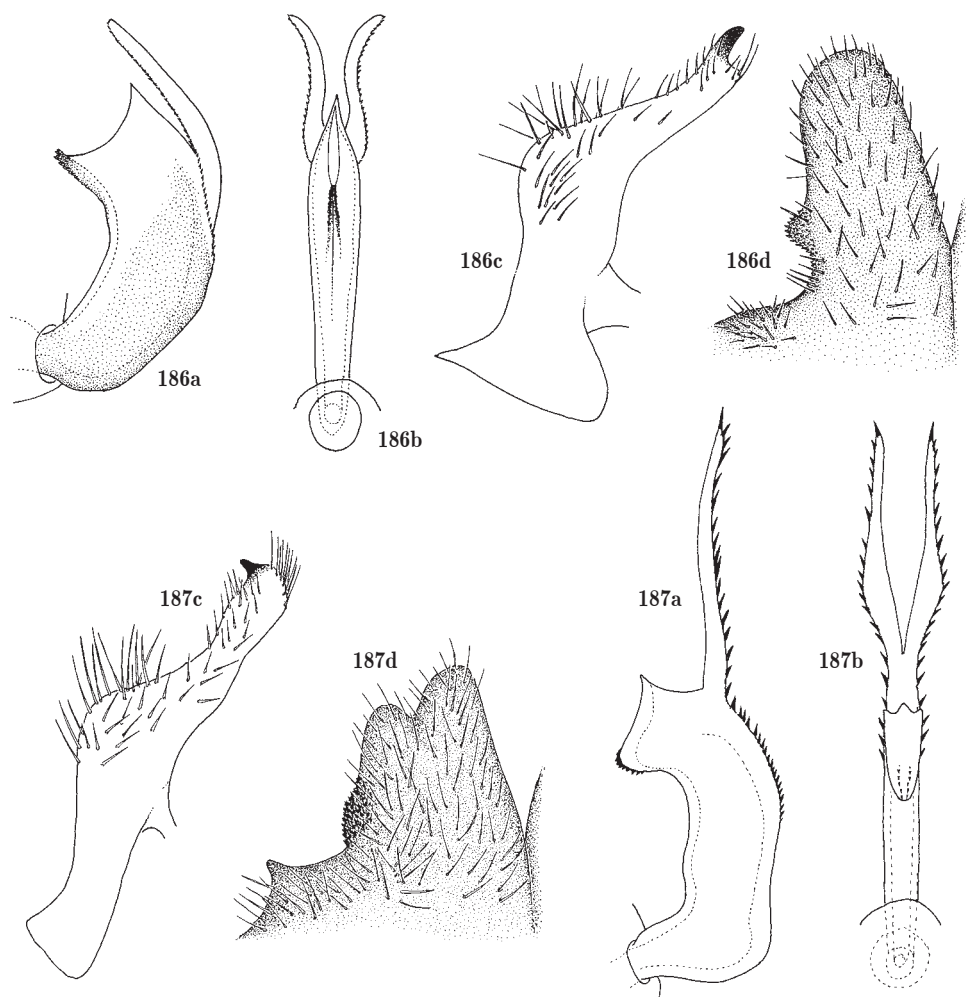
Figs 179-183.

179, *Ocoaxo quezaltanus* (Nast) (Mexico, Temescaltepec). 180, *O. punctus* (Nast) (holotype, from slide mount). 181, *O. inflexus* (Nast) (from slide mounts: a paratype; b holotype, adjusted). 182, *O. secundarius* (Nast) (Colombia, Pehlke, MIZW). 183, *O. septemnotatus* (Distant) (from slide mounts: a Panama, V. de Chiriqui; b Costa Rica, Irazu).



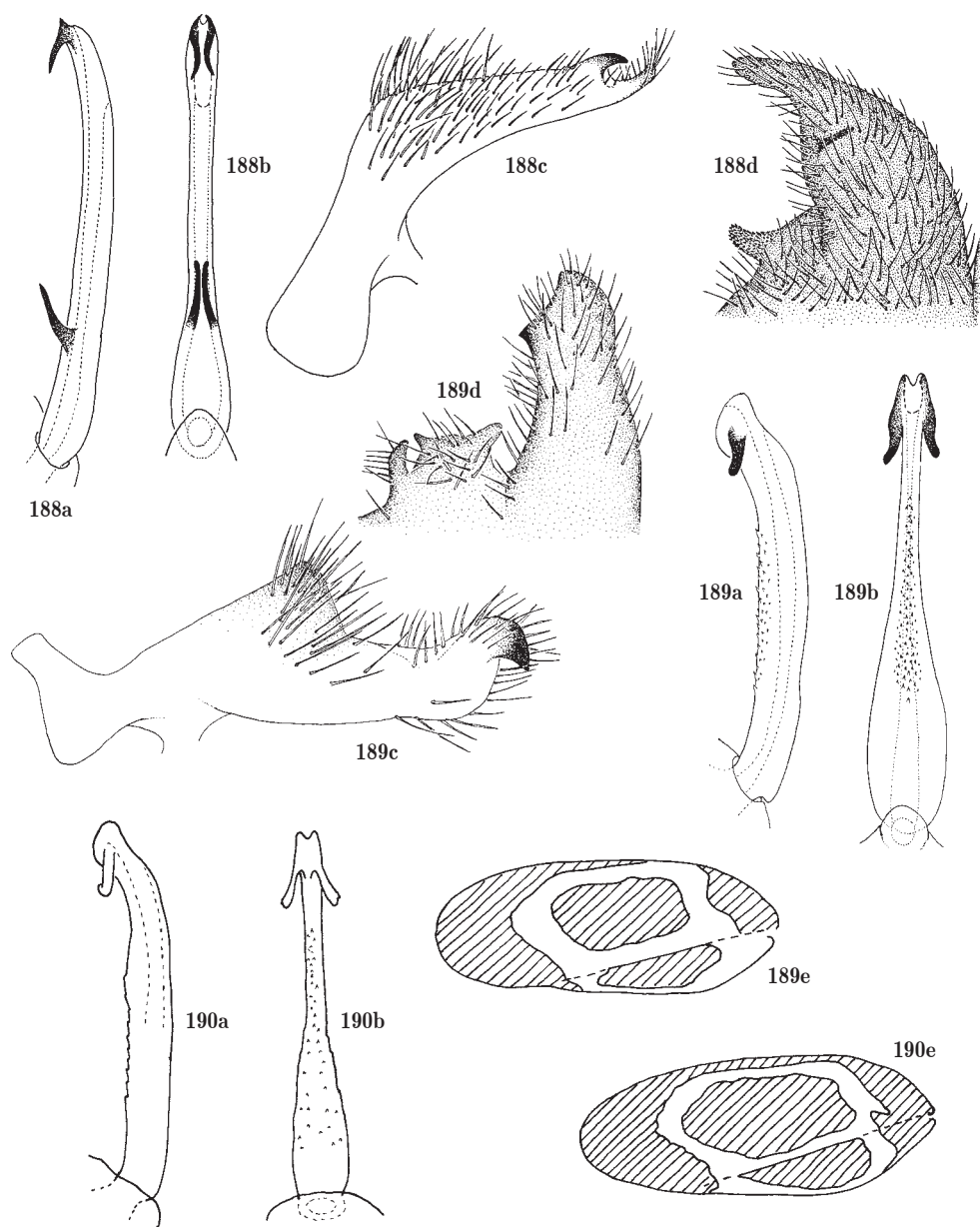
Figs 184-185.

184, *Panabrus dominicanus* (Distant) (Dominica (Bennett)). 185, *Pachacanthocnemis bella* (Walker) (a, b, d Colombia, L. Sapatosa Region; c Costa Rica, Limón; e holotype): e left paramere, lateral view.



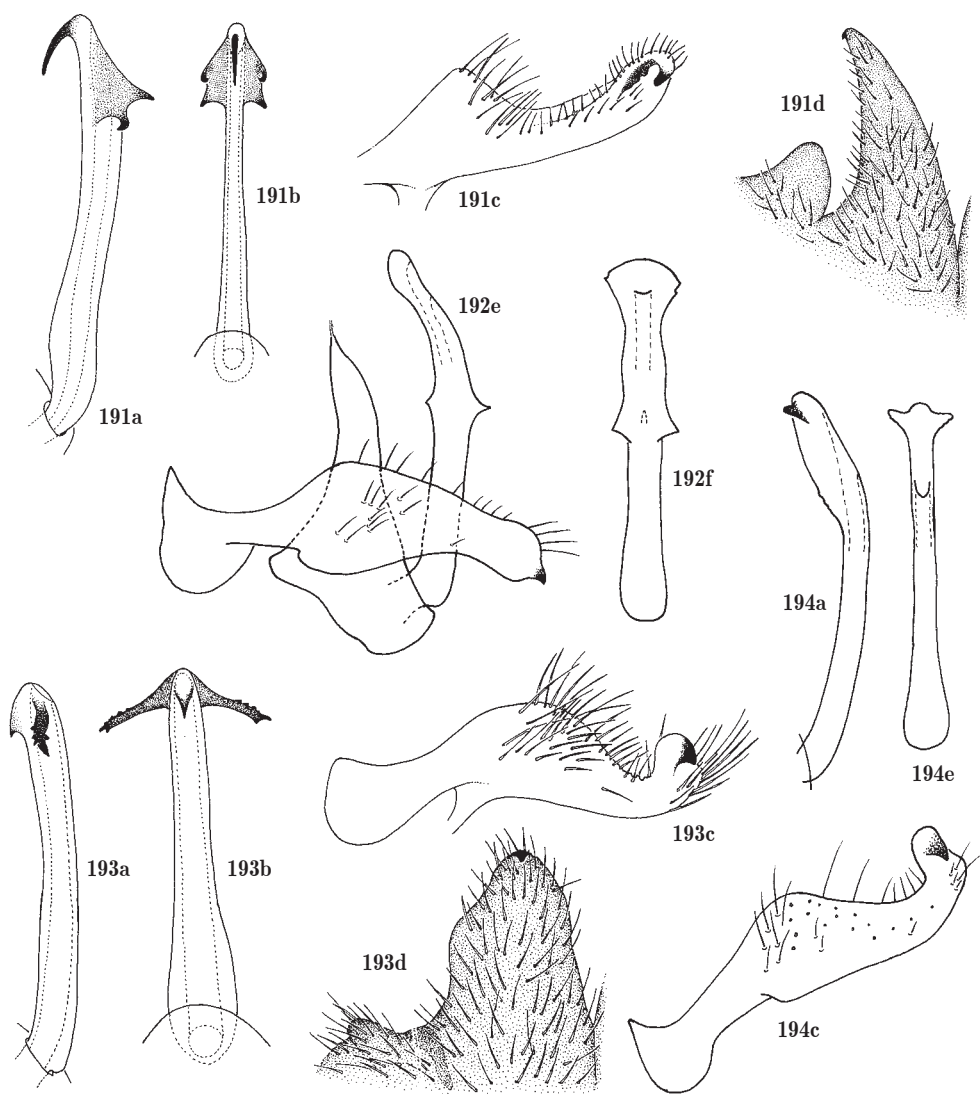
Figs 186-187.

186, *Olcotomaspis versicolor* (Lallemand) (Guatemala). 187, *Hyalotomaspis clarissa* (Jacobi) (Mexico, Jalapa).



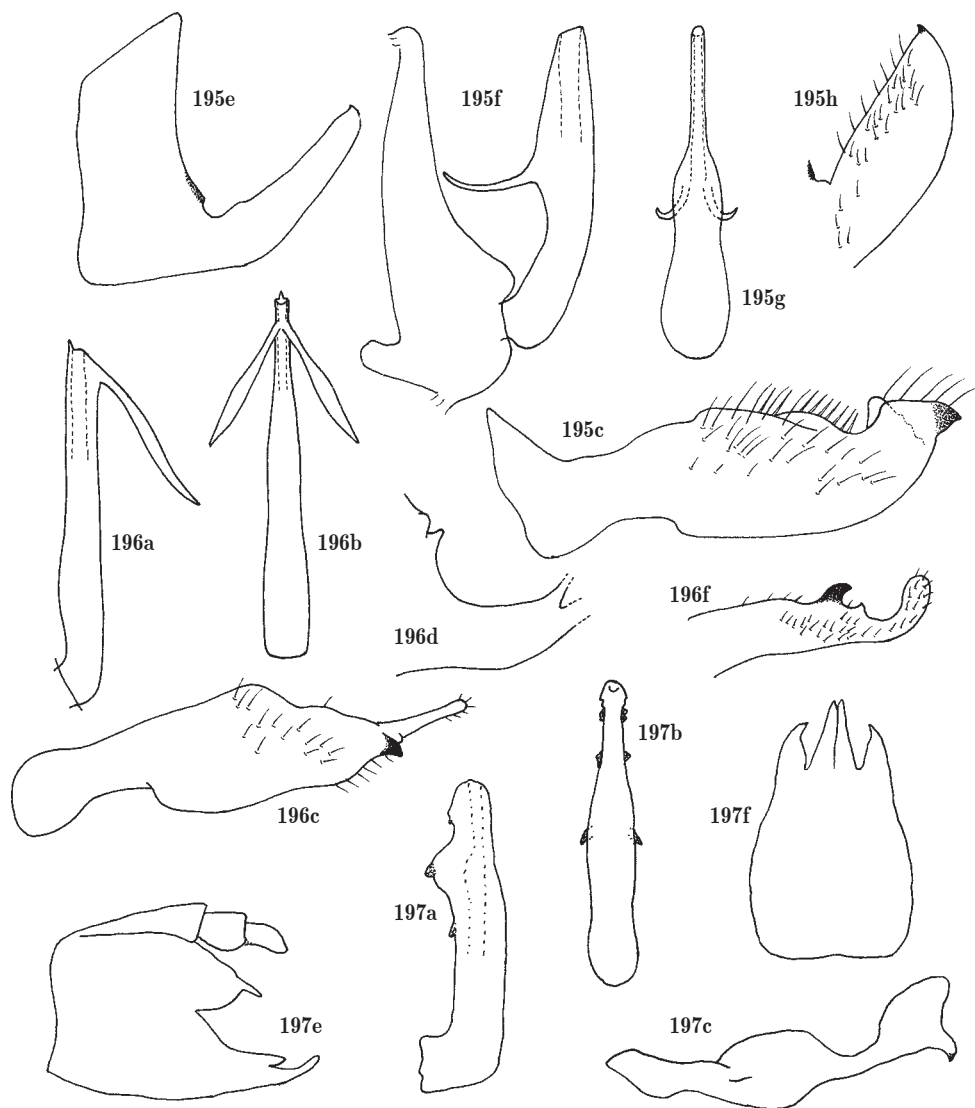
Figs 188-190.

188, *Huaina inca* (Guérin-Ménéville) (Mexico, Vera Cruz, Atoyac). 189, *Choconta elliptica* (Walker) (Venezuela, Marcizo del Naignata): e left tegmen (from Nast, 1975). 190, *C. circulata* (Guérin-Ménéville) (from Nast, 1975): e left tegmen.



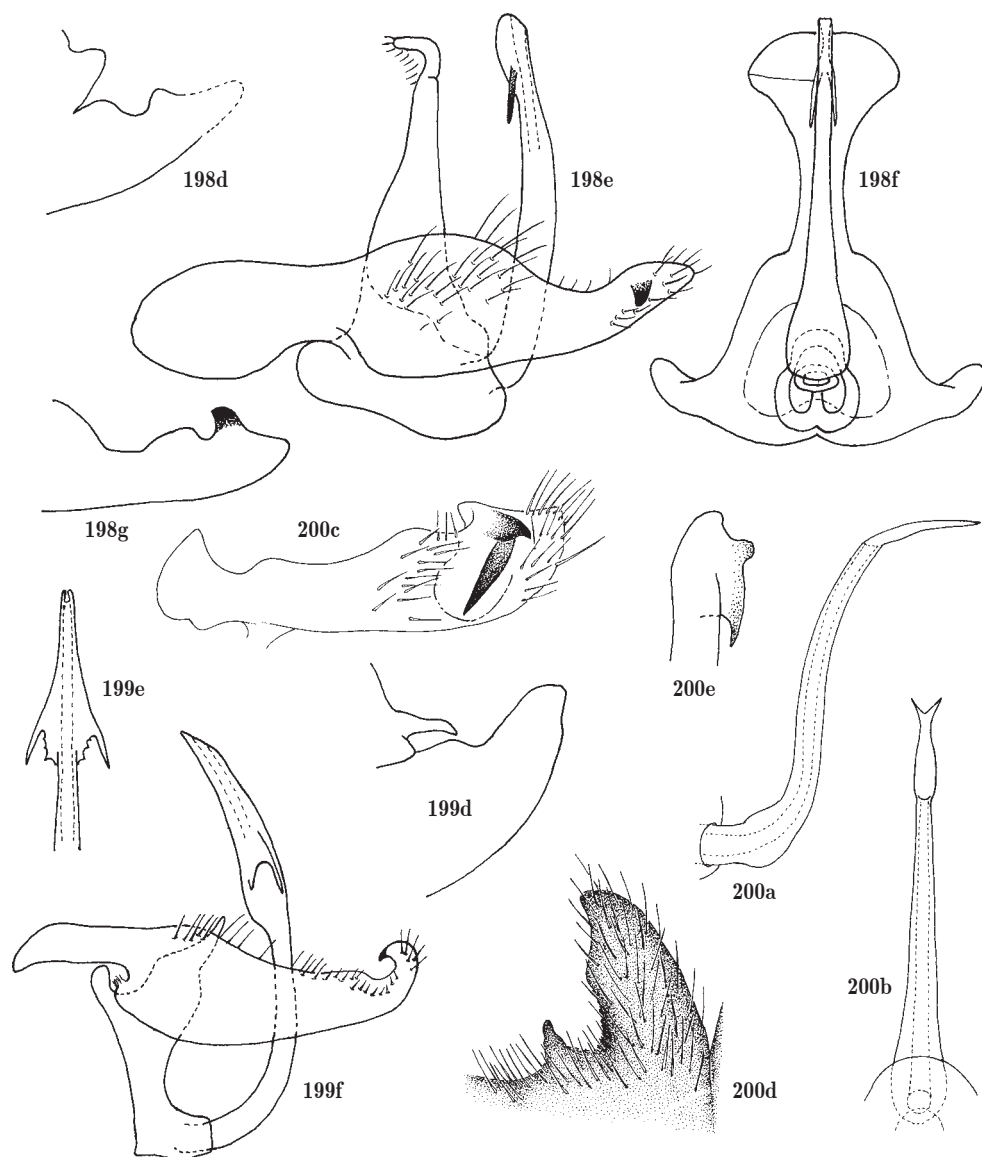
Figs 191-194.

191, *Monecphora pallida* Lallemand (syntype). 192, *M. nigratarsis* Stål ('Ouest Capi des mines', MNHN): e aedeagus, connective and paramere, left lateral view, f aedeagus, posterior view. 193, *M. semilutea* Stål (syntype): e aedeagus, posterior view). 194, *M. cingulata* (Le Peletier & Serville) (Argentina, Puerto Aguirre).



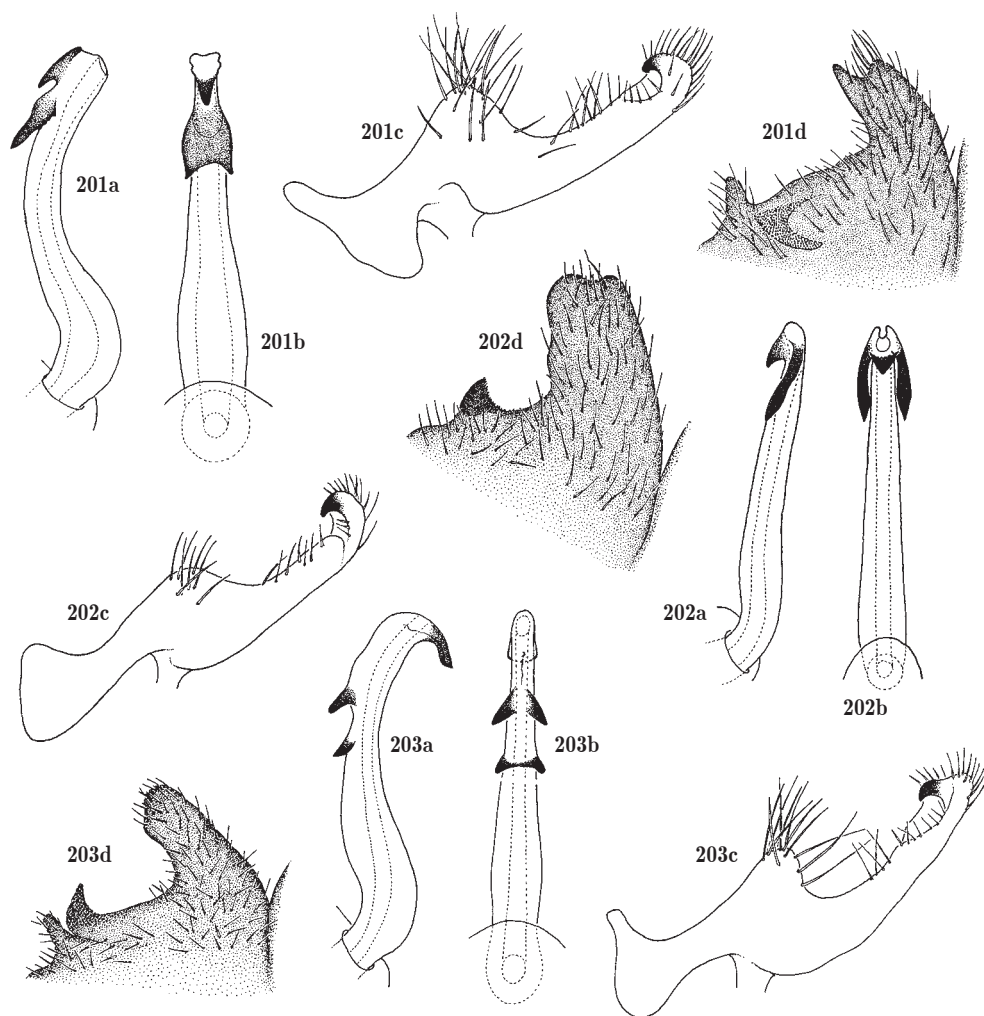
Figs 195-197.

195, *Tomaspis platensis* Berg (syntype): e pygofer and subgenital plate, left lateral view; f, aedeagus and connective, left lateral view; g, aedeagus, posterior view. 196, *Sphenorhina discors* (Jacobi) (syntype): e aedeagus, posterior view; f apex of left paramere, ventral view. 197, *Tomaspisina fuliginosa* Nast (redrawn from original): e, f male genital capsule, lateral and ventral view.



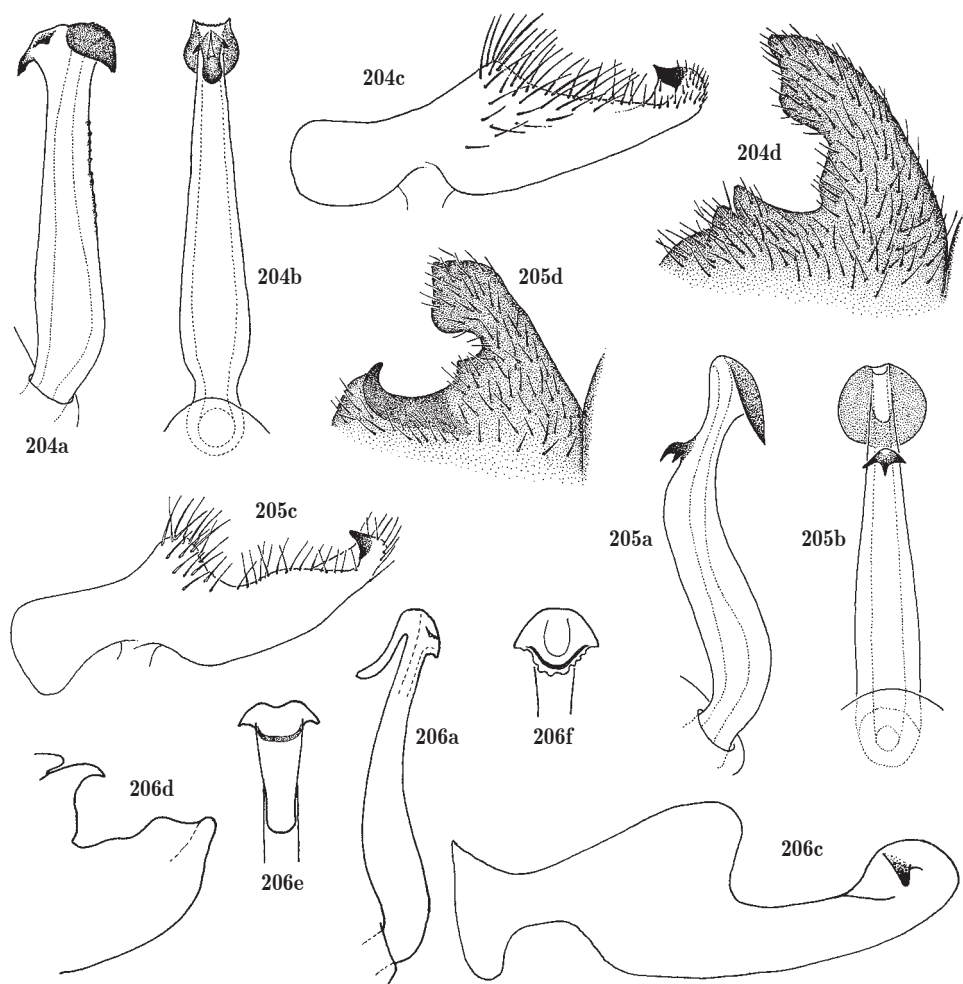
Figs 198-200.

198, *Tomaspis handlirschi* Fowler (holotype): e aedeagus, paramere and connective, left lateral view; f aedeagus and connective, posterior view; g apex of paramere, ventral view. 199, *Maxantonia notata* (Walker) (Brazil, Vilhena): e apex of aedeagus, posterior view; f, aedeagus, paramere and connective, left lateral view. 200, *Ferorhinella brevis* (Walker) (Brazil, Constancia): e apex of right paramere, dorsal view.



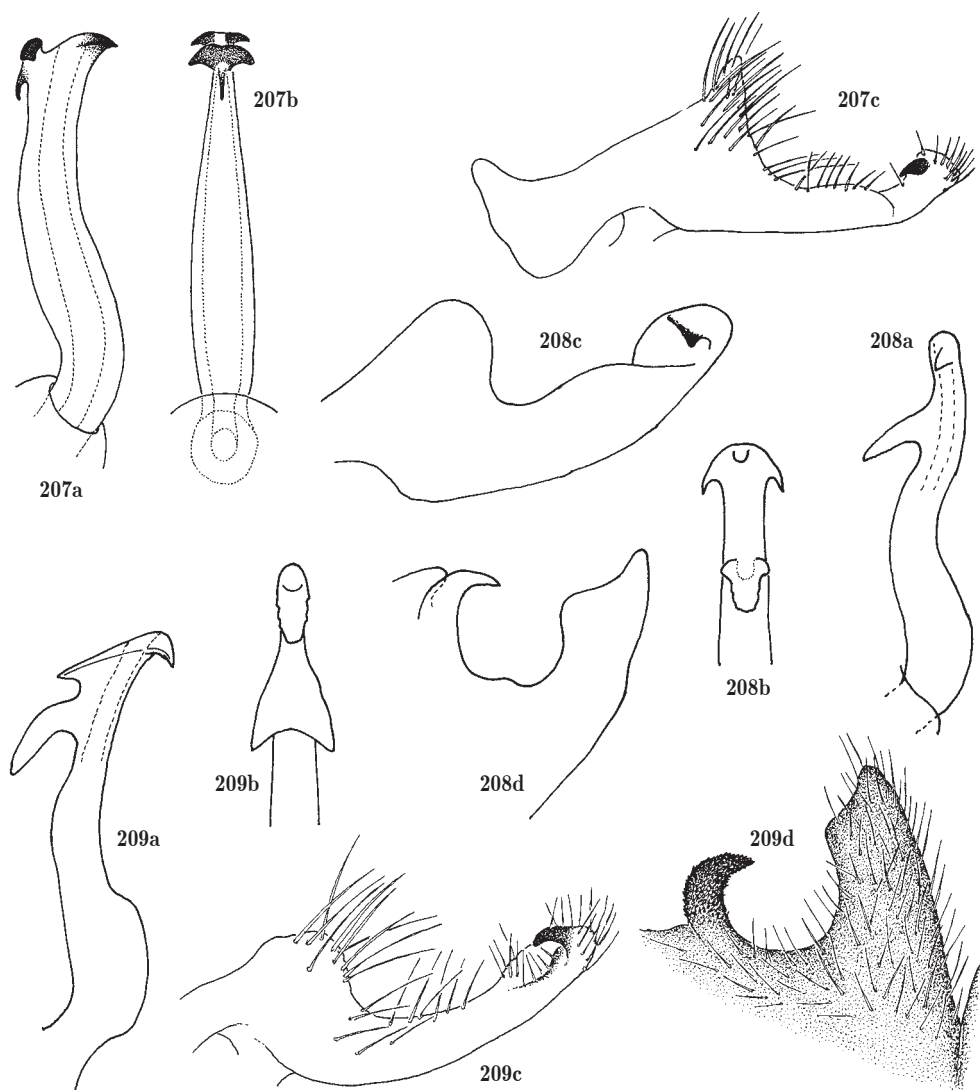
Figs 201-203.

201, *Maxantonia quadriguttata* (Walker) (Brazil '68-4'). 202, *M. lineola* (Fabricius) (Guyana, Essequibo R.). 203, *M. catella* (Jacobi) (Peru, Valle Chanchamayo).



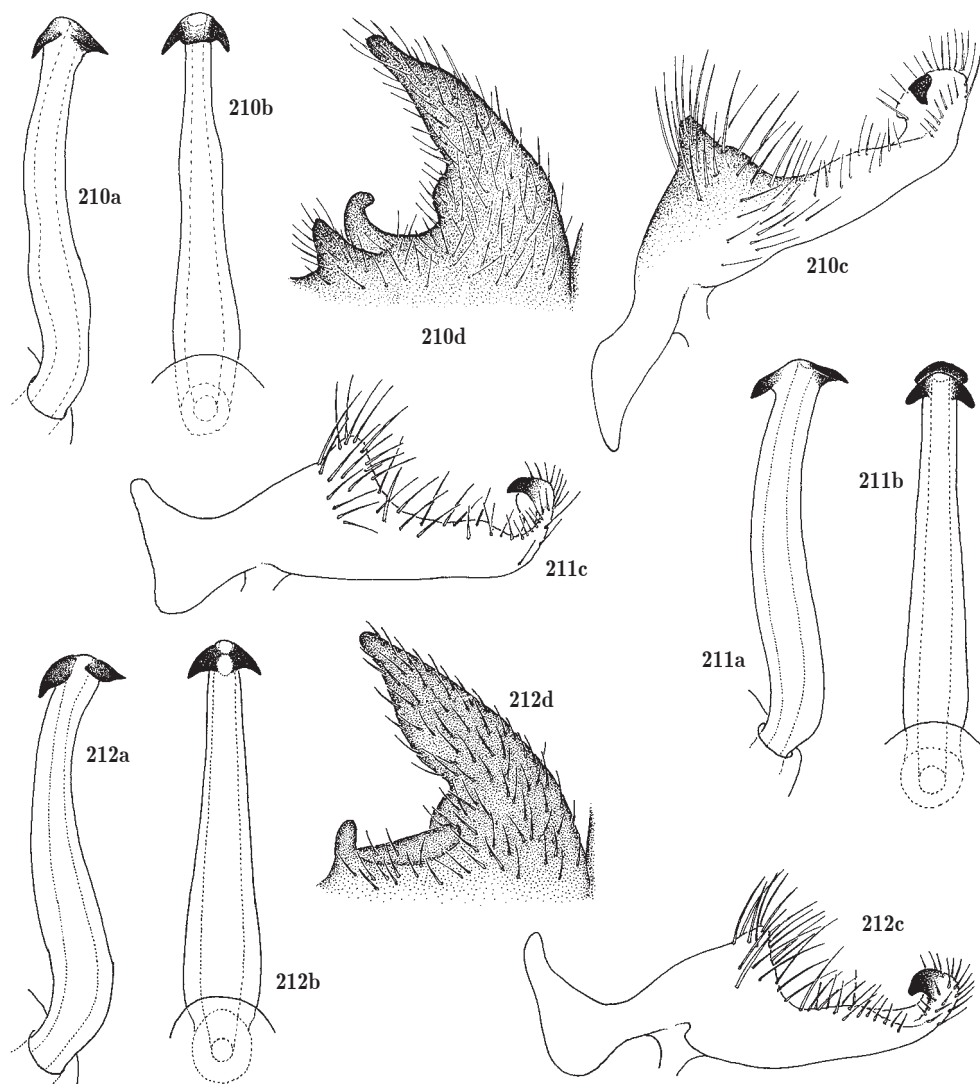
Figs 204-206.

204, *Marantonia scita* ((Walker) (Brazil, Stn Catherina). 205, *M. innotata* (Lallemand) (holotype). 206, *M. scindens* (Walker) (Brazil, Marãa (MPEG): e, f apex of aedeagus, anterior and posterior view respectively.



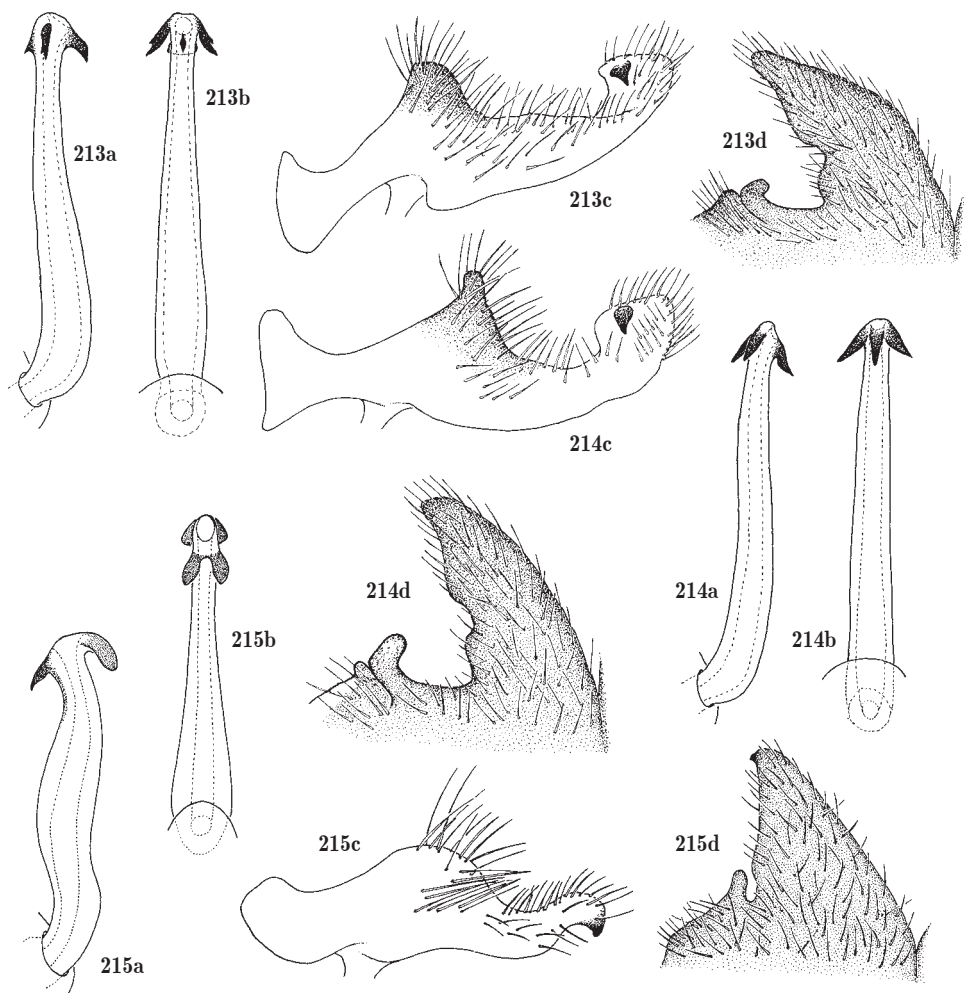
Figs 207-209.

207, *Maxantonia nigripes* (Lallemand) (Venezuela '49 72'). 208, *M. speciosa* (Lallemand) (Peru, Chanchamayo, ZMHU). 209, *M. bifurcata* Carvalho & Webb (holotype).



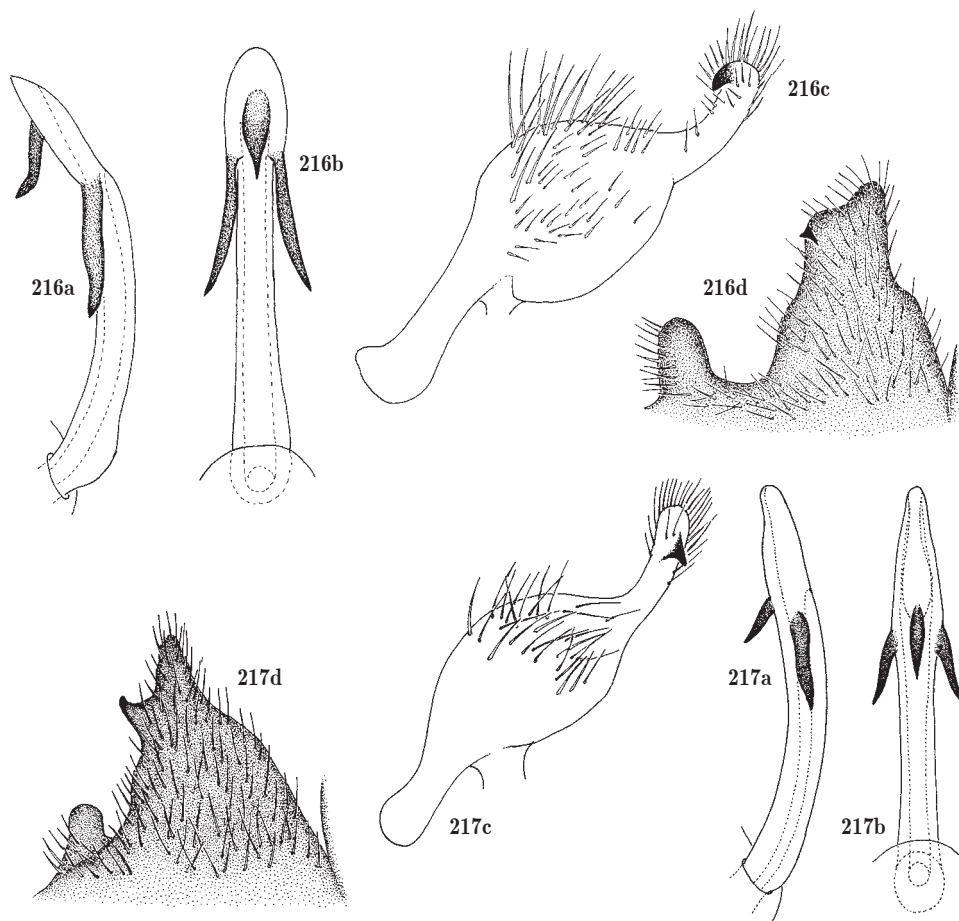
Figs 210-212.

210, *Maxantonia bahiana* (Lallemand) (syntype). 211, *M. fortunata* (Lallemand) (holotype). 212, *M. plagiata* (Burmeister) (Brazil, Sao Paulo).



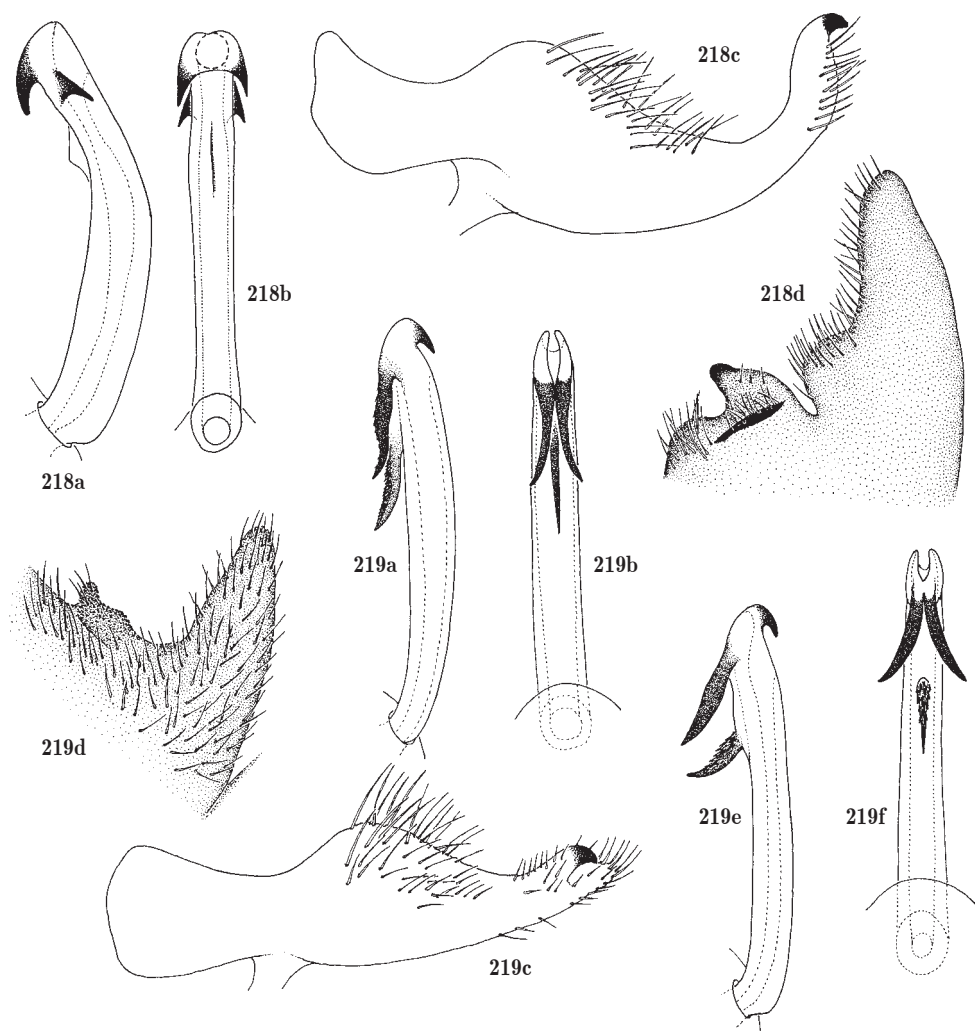
Figs 213-215.

213, *Maxantonia rubescens* (Lallemand) (Brazil, Matto Grosso). 214, *M. mylabroides* (Fowler) (Costa Rica, Turrialba). 215, *M. quadrifasciata* (Le Peletier & Serville) (Brazil, 'Rio').



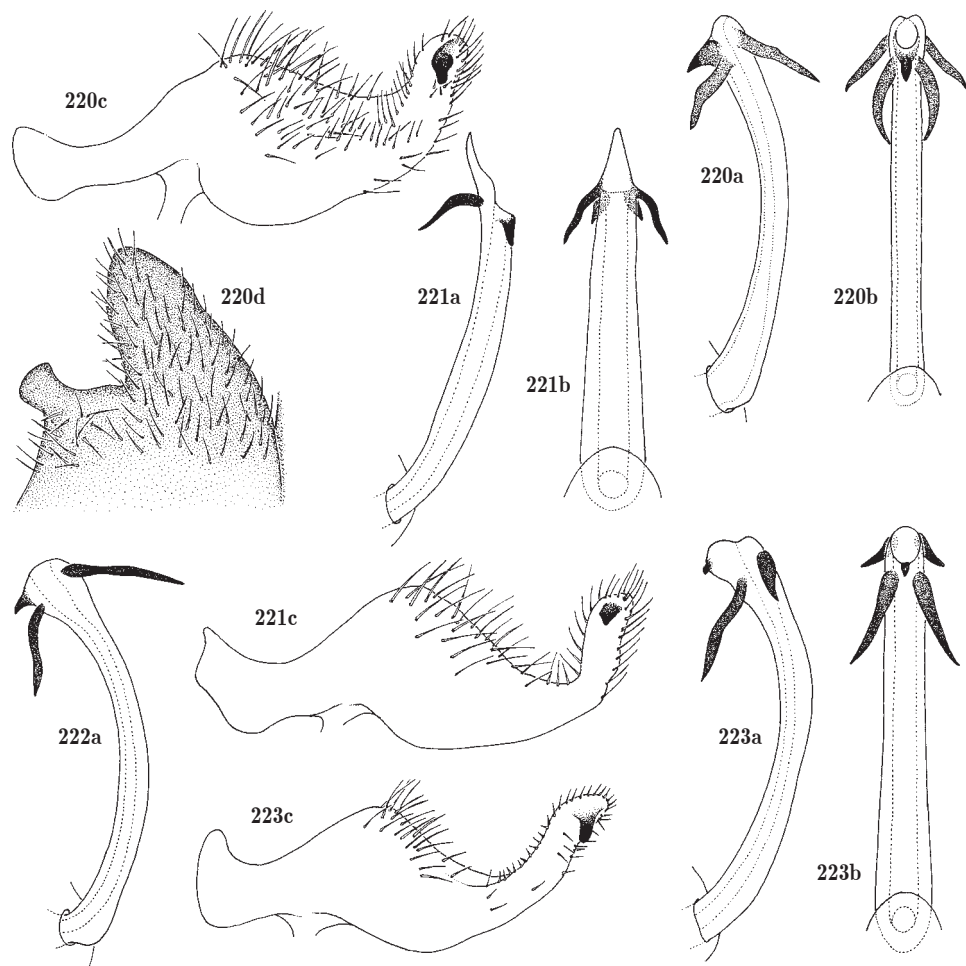
Figs 216-217.

216, *Makonaima lucifera* (Jacobi) (syntype *M. circumducta* Distant). 217, *M. rivularis* Distant (Ecuador, Mera).



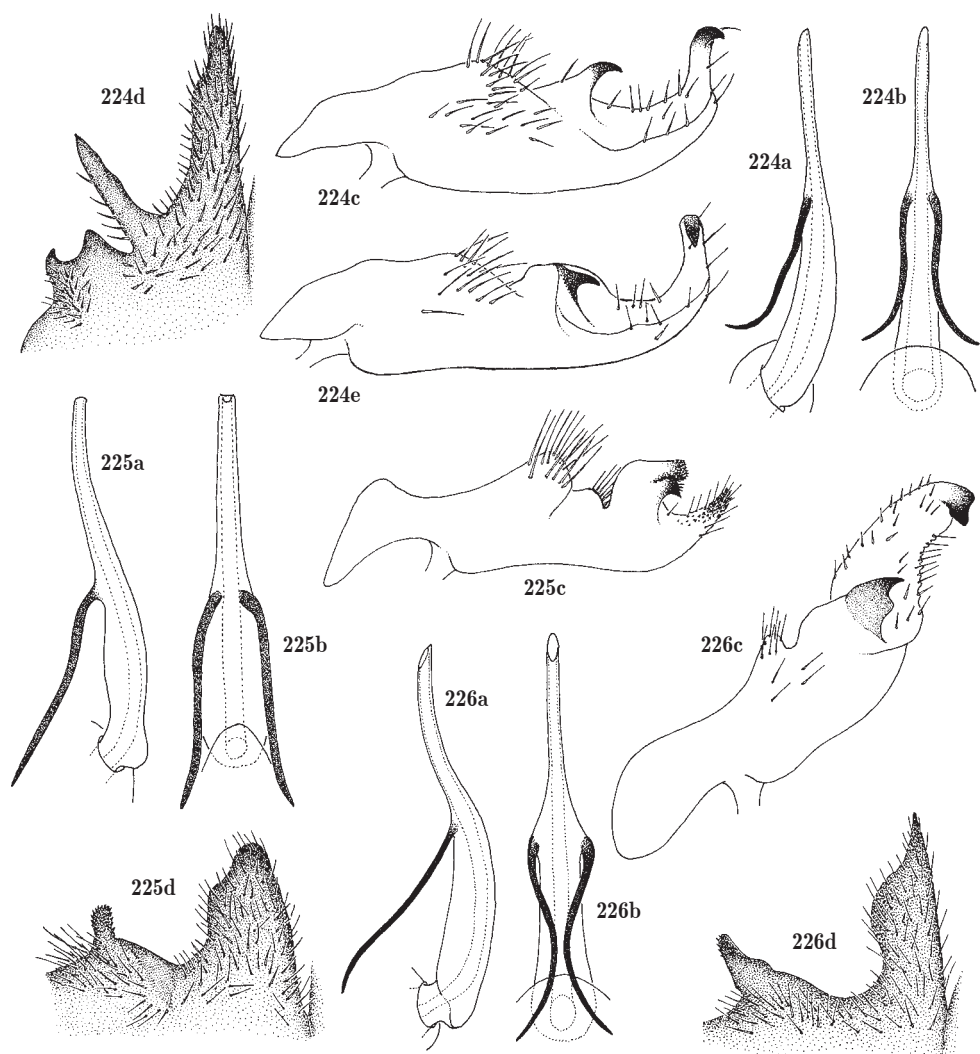
Figs 218-219.

218, *Korobona lineata* Distant (Brazil, Sao Paulo). 219, *Tomaspis furcata* (Germar) (a-d: no locality, 'Crowley bequest'; e-f 'dark form' (*nigricans* Amyot & Serville), no locality, 'Ball coll.').



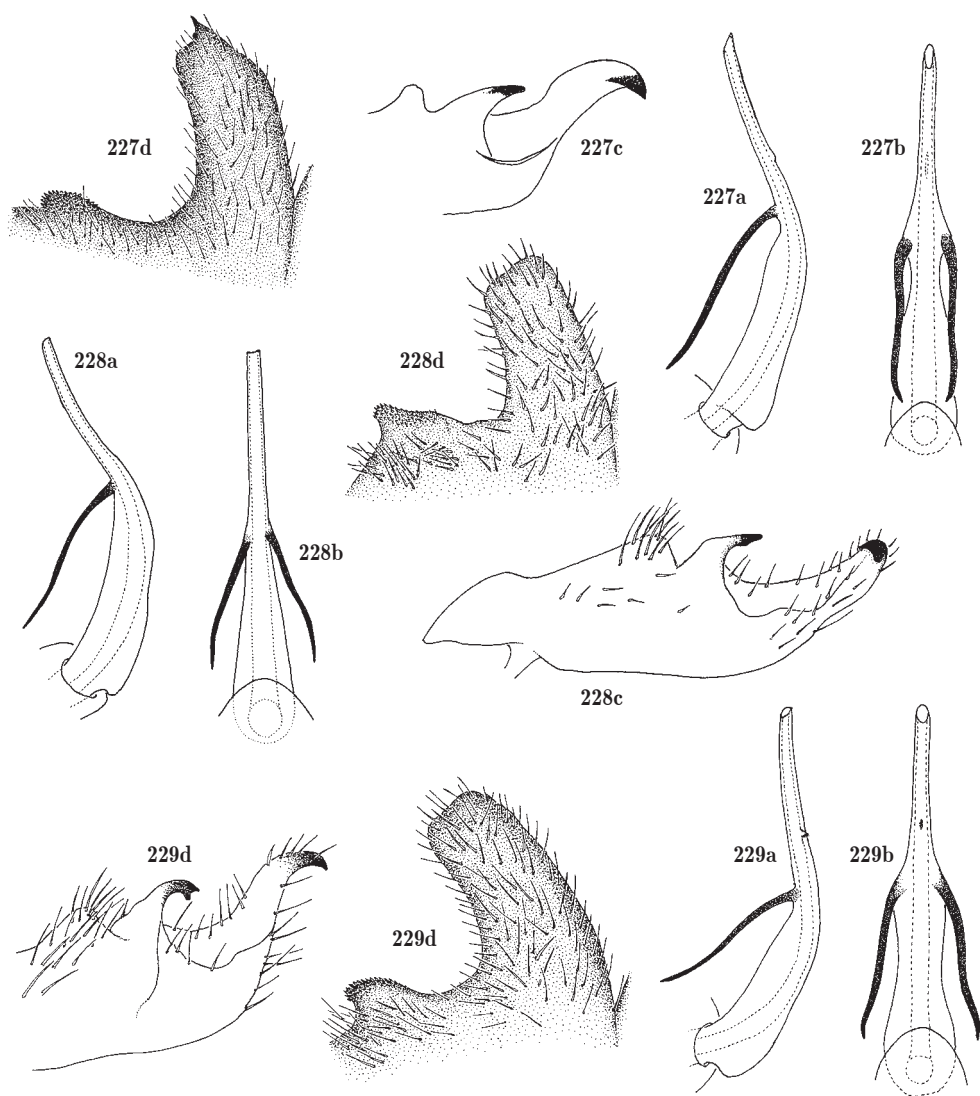
Figs 220-223.

220, *Vorago radicis* (China & Myers) (Guyana, Bartlett). 221, *V. nanta* Fennah (holotype). 222, *V. undulata* (Lallemand) (syntype, from slide mount). 223. *V. boxi* Fennah (syntype).



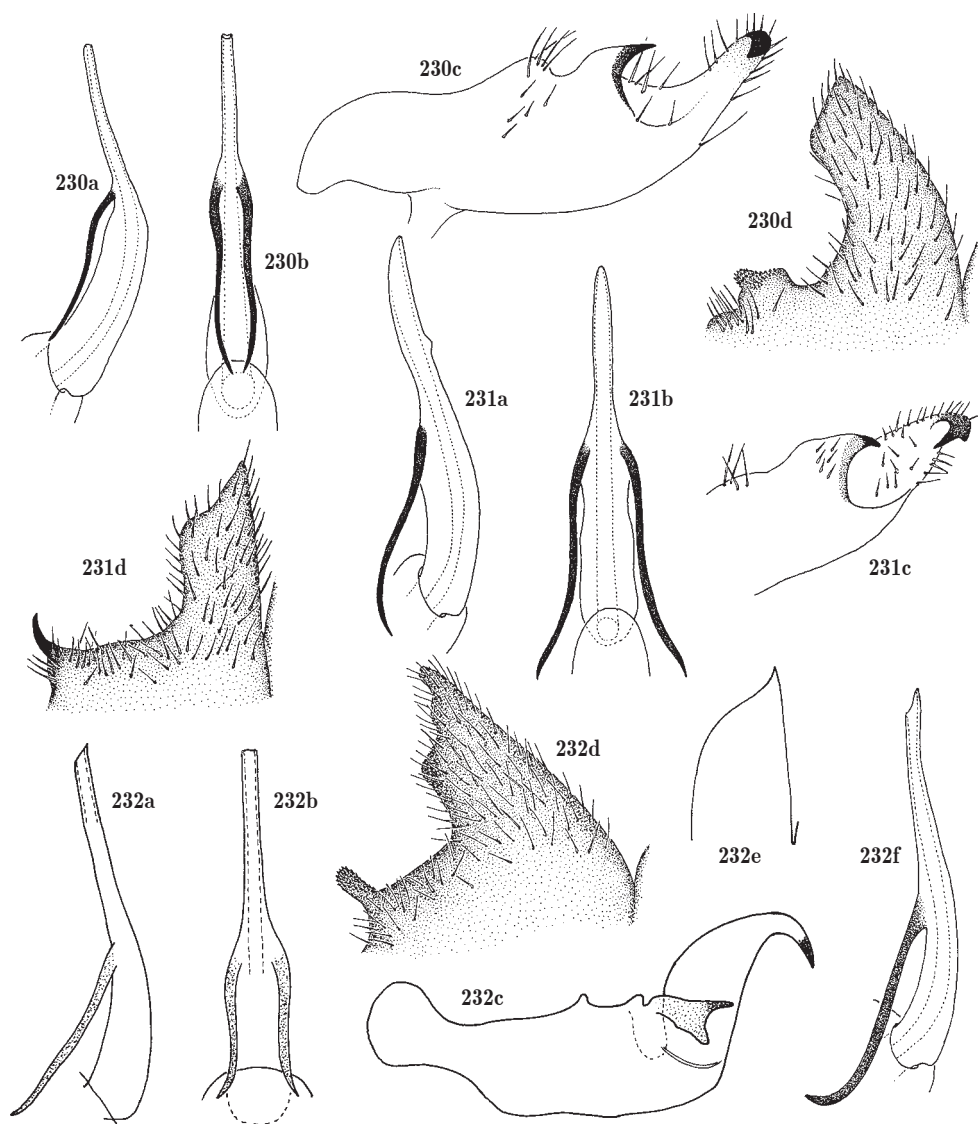
Figs 224-226.

224, *Aeneolamia colon* (Germar) (a-d Brazil, Bahia; e Brazil, Ceara). 225, *A. reducta montana* Fennah (syntype). 226, *A. varia bogotensis* (Distant) (syntype).



Figs 227-229.

227, *A. varia saccharina* (Distant) (syntype *Tomaspis saccharina* var. *tricolor* Lallemand). 228, *A. varia sontica* Fennah (syntype). 229, *A. varia lugens* Fennah (syntype).



Figs 230-232.

230, *Aeneolamia flavilatera* (Urich) (Guiana, Demerera). 231, *Aeneolamia lepidior* (Fowler) (Panama, Coiba). 232, *A. albofasciata* (Lallemand) (a-c, e holotype *A. postica occidentalis* Fennah, d, f Mexico, Morelos); e left subgenital plate, ventral view; f aedeagus, left lateral view.

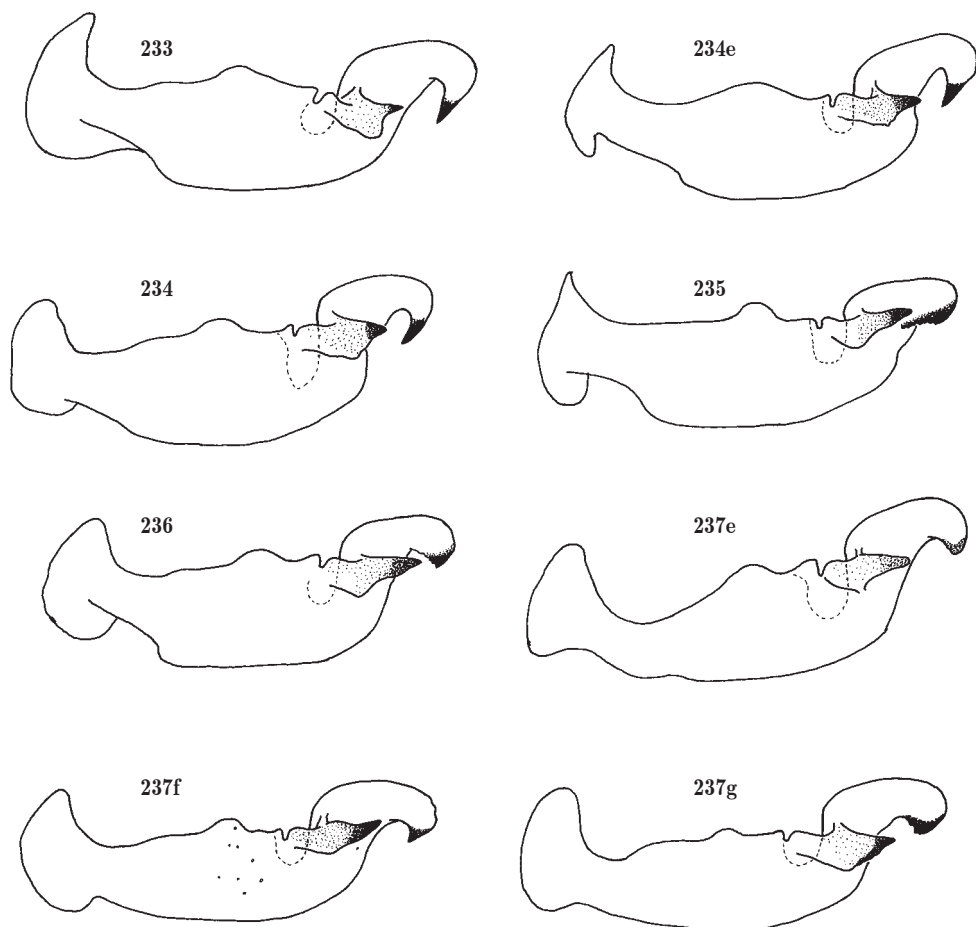
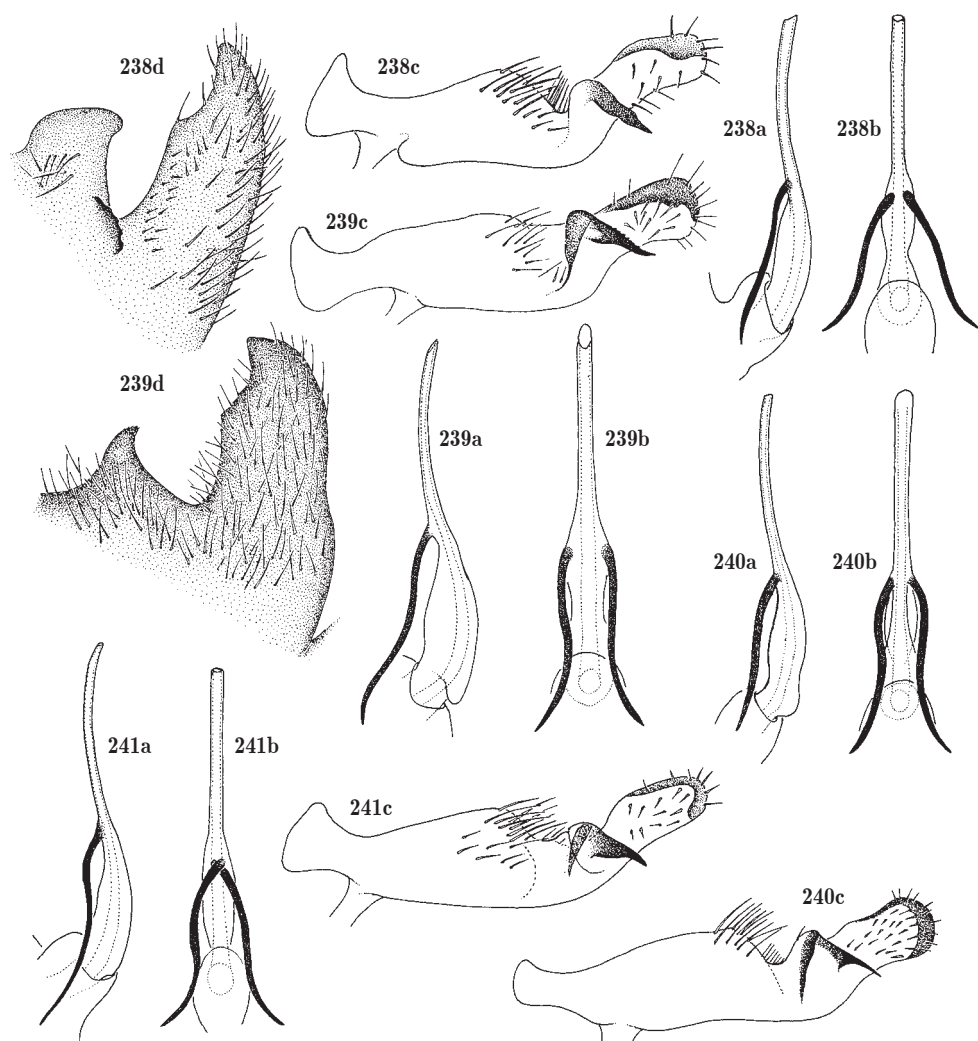


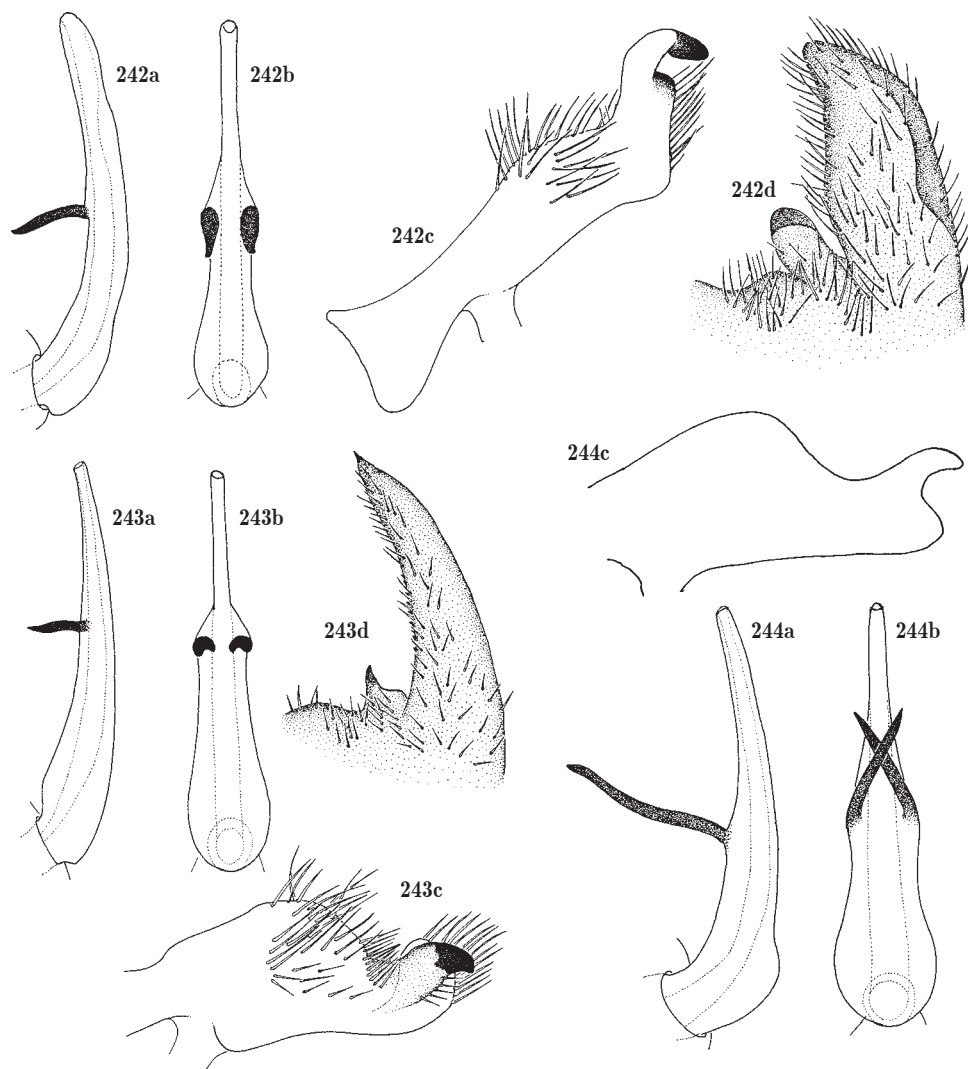
Fig. 233-237 (left paramere, lateral view).

233, *Aeneolamia contigua* (Walker) (holotype). 234, *A. contigua sanctaerosae* Fennah (e paratype with faint red markings, f paratype with orange markings). 235, *A. contigua turrialbae* Fennah (holotype). 236, *A. contigua* ssp.?, Nicaragua, Elviejo. 237, *A. contigua postica* (Walker) (e, China & Myers (1934) 'allotype' of *postica*, Mexico, Veracruz; f Fowler's (1897: 185) '*Tomaspis simulans* Walker', Mexico, Teapa; g Fowler's (1897: 184) '*Tomaspis postica* Walker', Mexico, Teapa).



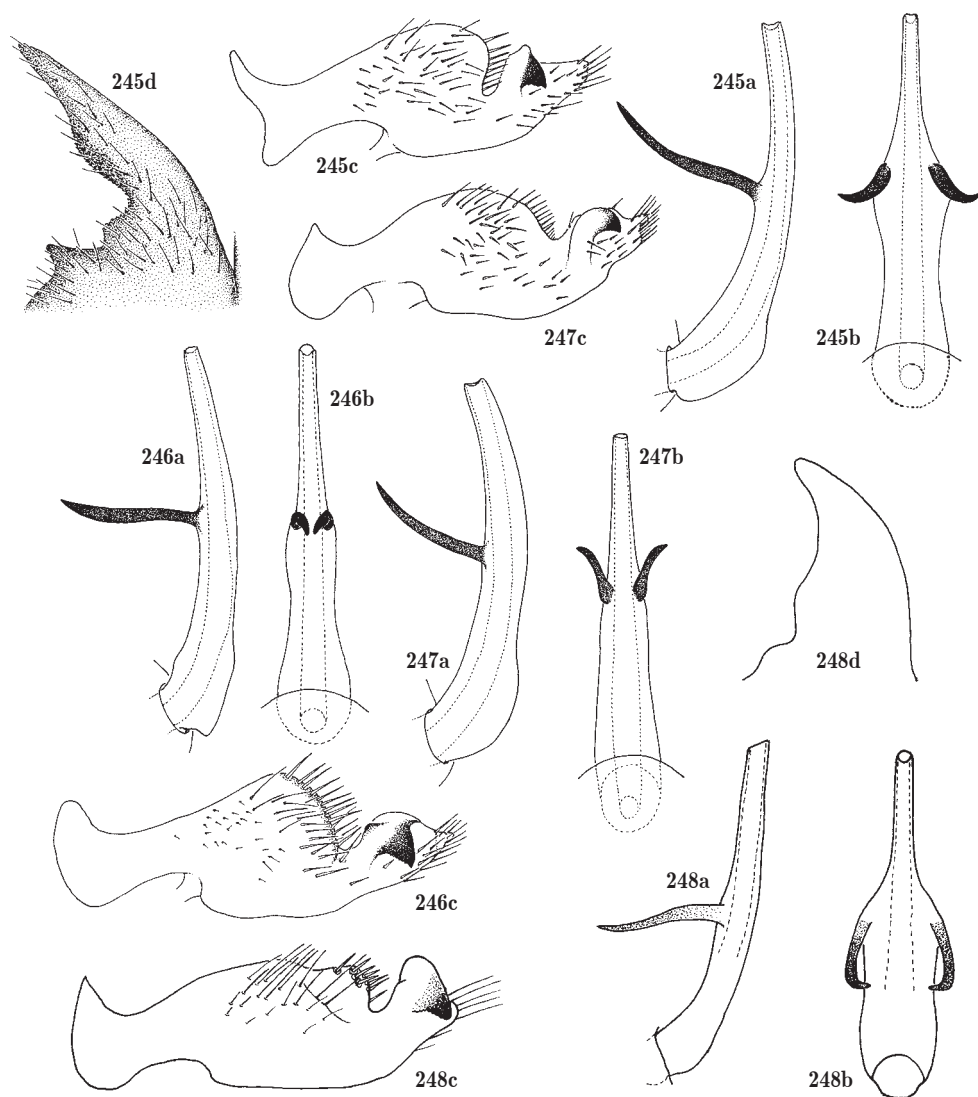
Figs 238-241.

238, *Isozulia soluta trivittata* (Jacobi) (holotype *I. charaxus* Fennah). 239, *I. astralis* (Distant), Ecuador, Puyo. 240, *I. astralis flamen* Fennah (paratype). 241, *I. minor* Fennah (holotype).



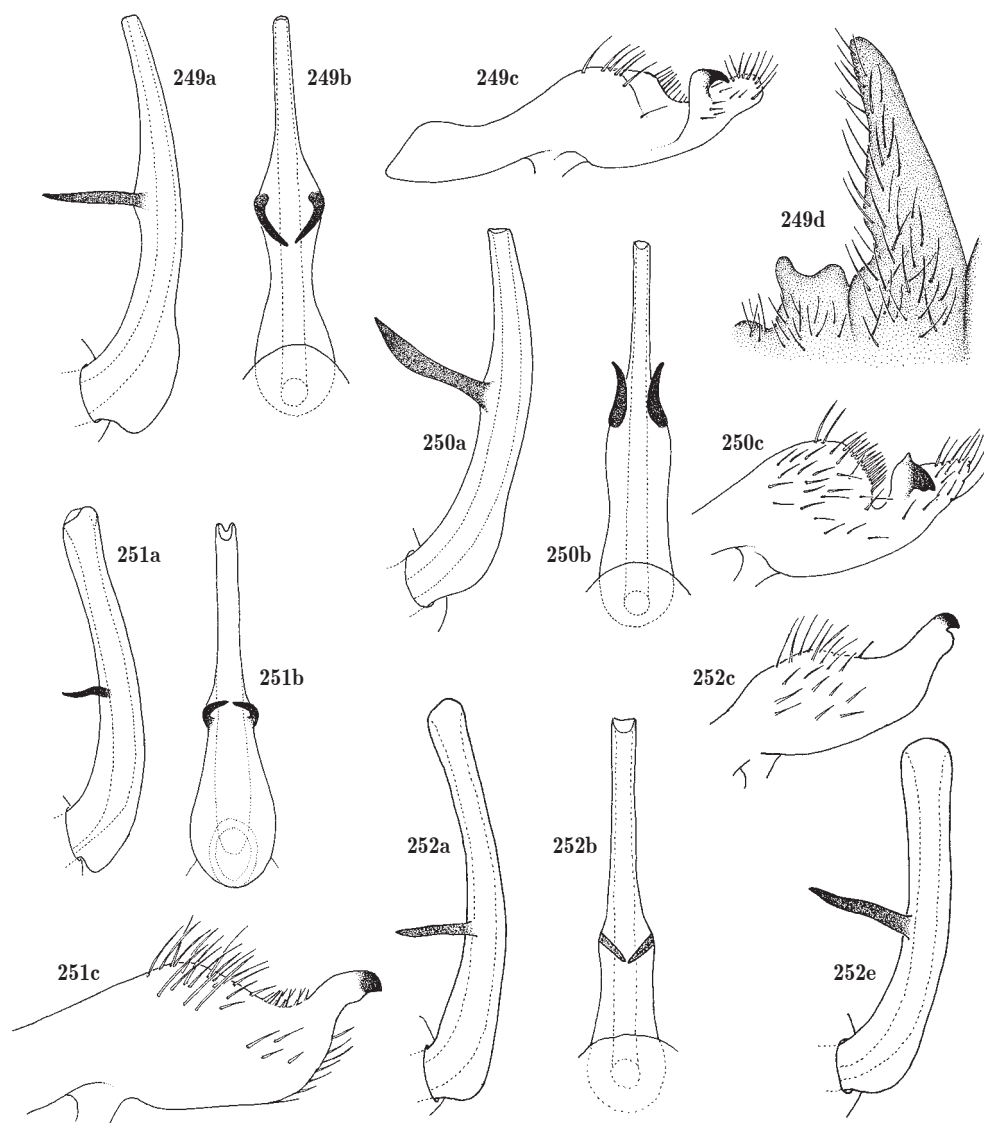
Figs 242-244.

242, *Kanaima katzensteinii* (Berg) (Argentina). 243, *K. vittata* (Walker) (Brazil, Sao Carlos). 244, *K. fortunata* (Lallemand) (syntype).



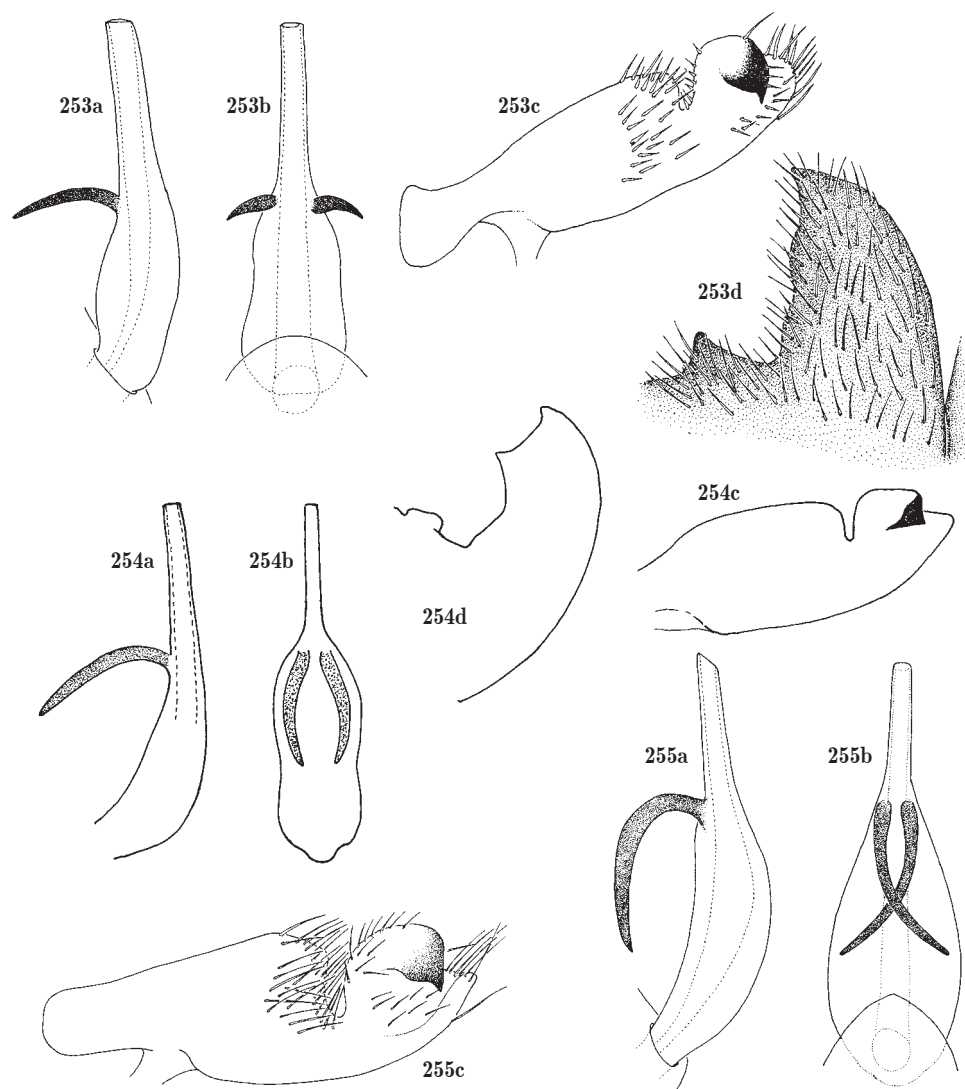
Figs 245-248.

245, *Mahanarva (Ipiranga) integra* (Walker) (Brazil, Lages). 246, *L. bahiaensis* Carvalho & Webb (holotype). 247, *L. rubicunda* (Walker) (Brazil, Rio de Janeiro). 248, *L. albifascia* (Walker) (holotype).



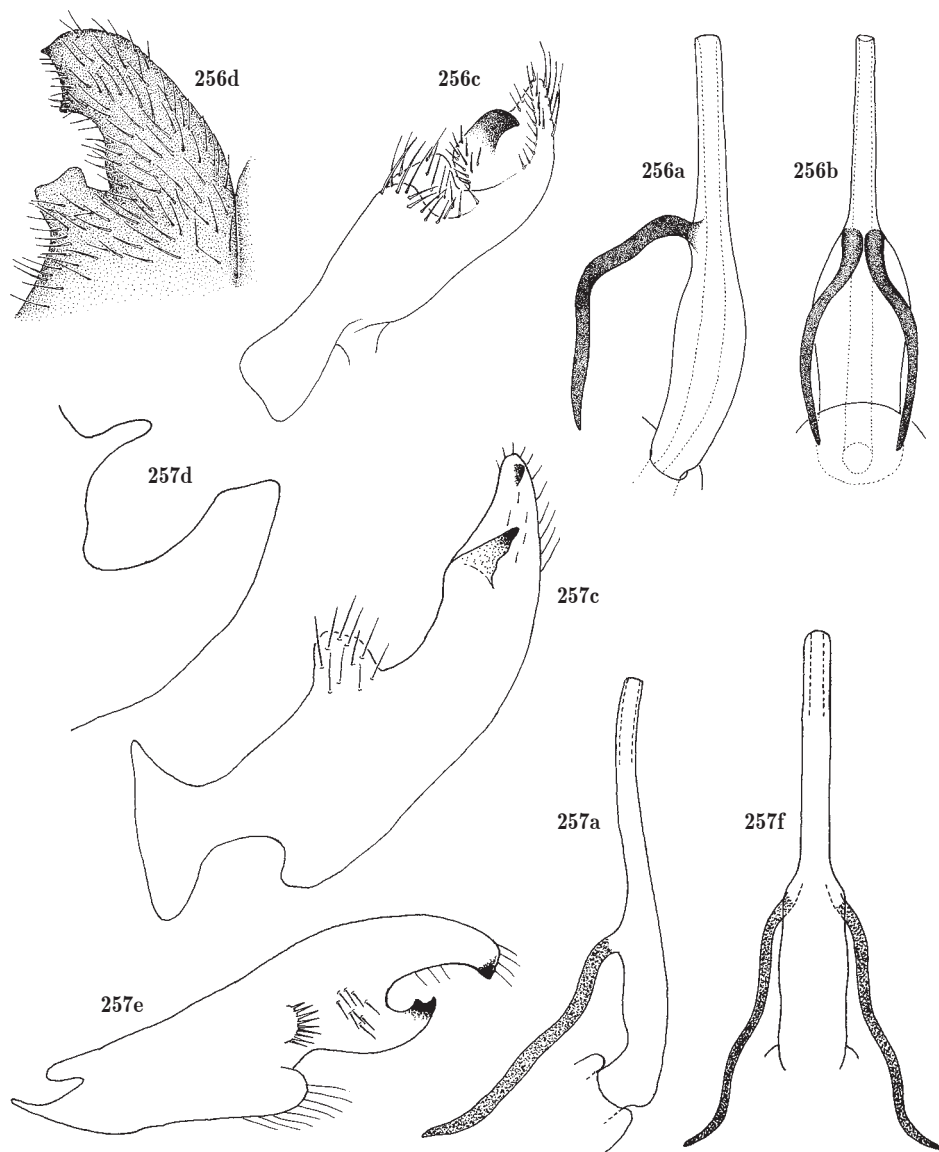
Figs 249-252.

249, *Mahanarva (Ipiranga) aguirrei* (Berg) (Argentina, Buenos Aires). 250, *L. rubripennis* Schmidt (Brazil, Sao Paulo). 251, *Kanaima fluvialis lateralis* (Lallemand) (syntype). 252, *K. fluvialis fluvialis* (Lallemand) (a-b, one of four possible specimens in BMNH; c, Paraguay; e, Argentina, Gob. Chaco).



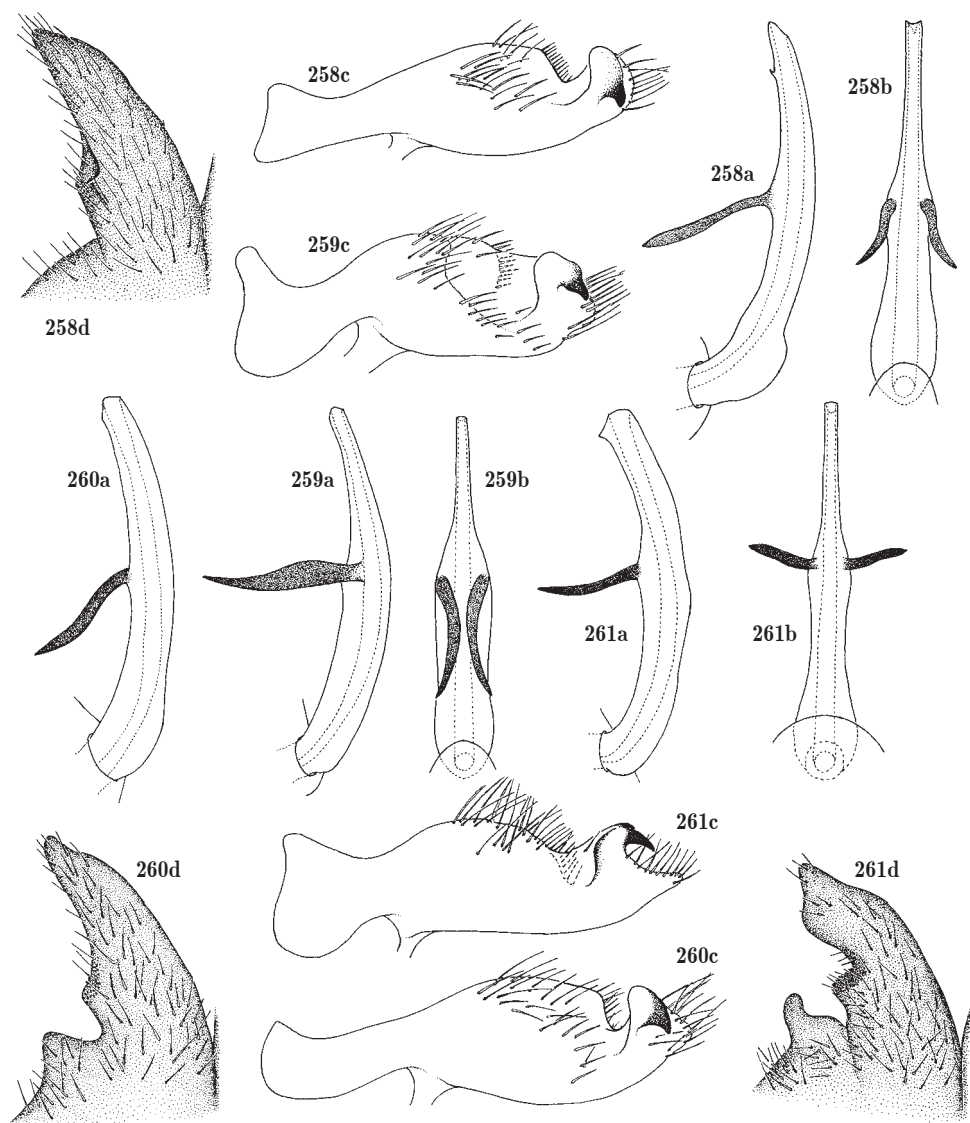
Figs 253-255.

253, *Aracamunia dimorpha* (Distant) (syntype). 254, *Mahanarva phantastica* (Breddin) (syntype). 255, *M. cruzminor* (Fowler) ([?]-del Cruce).



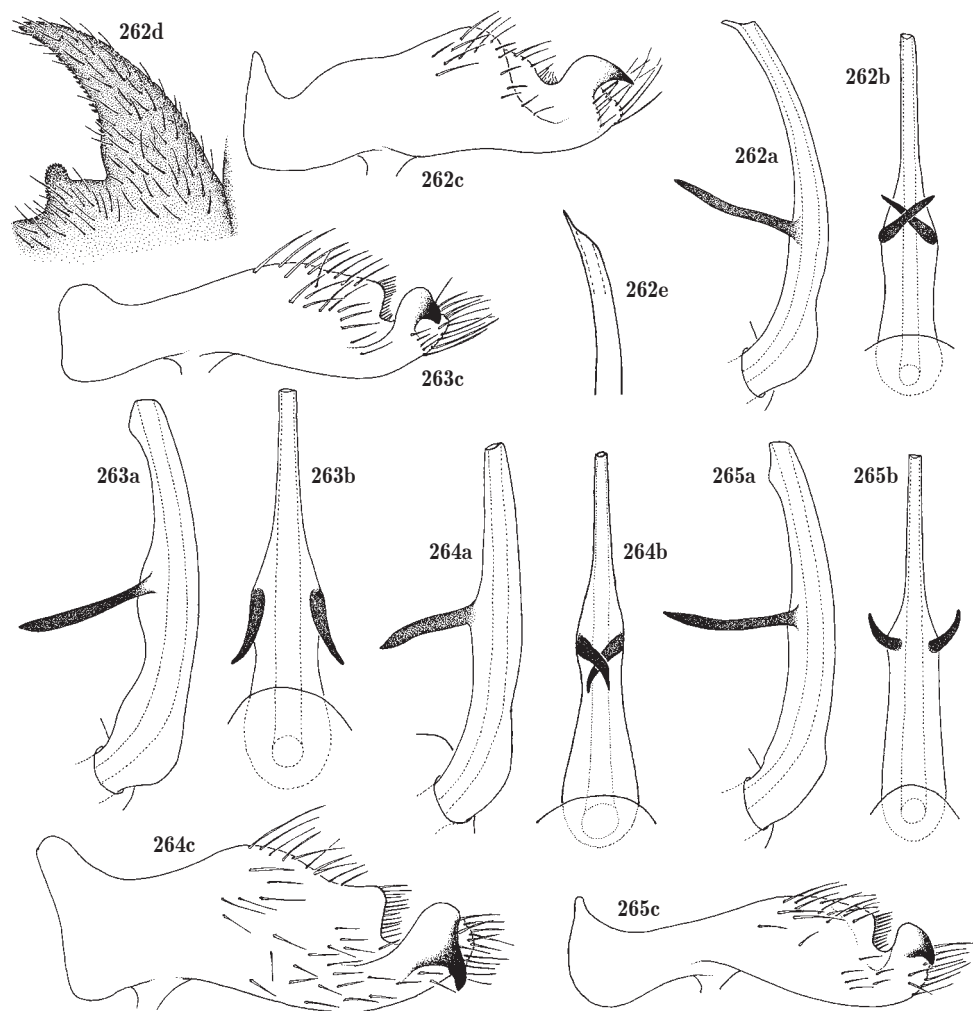
Figs 256-257.

256, *Mahanarva inconclusa* (Metcalf) (Ecuador, Mt Tunguragura, one of two possible dissections).
 257, *M. bobischi* Jacobi (syntype): e left paramere, dorsal view; f aedeagus, posterior view.



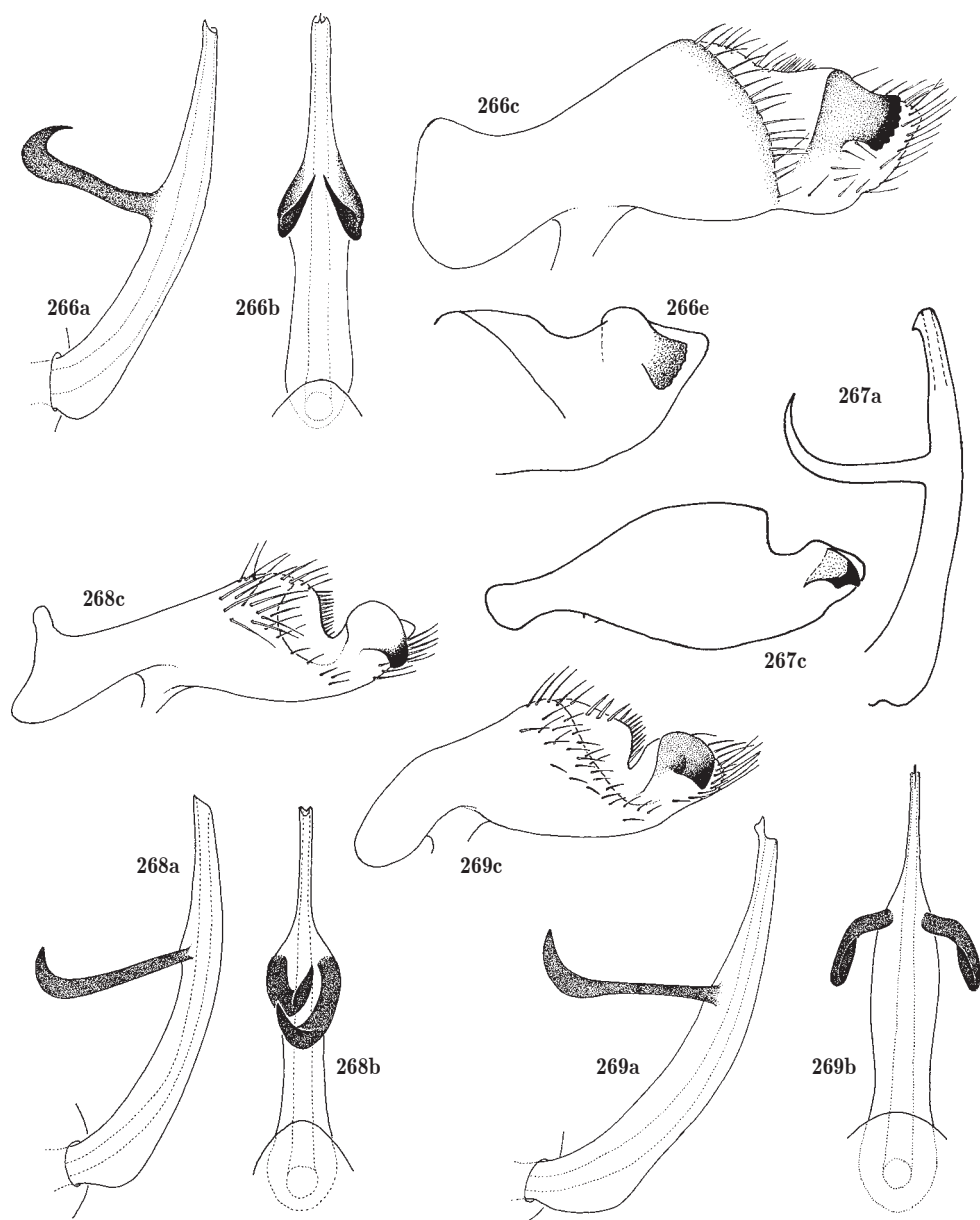
Figs 258-261.

258, *Mahanarva chilensis* (Distant) (holotype). 259, *M. bipars* (Walker) (holotype). 260, *M. bicolor* (Signoret) (Ecuador, from slide mount). 261, *M. costaricensis* (Distant) (Las Delicias [Mexico?]).



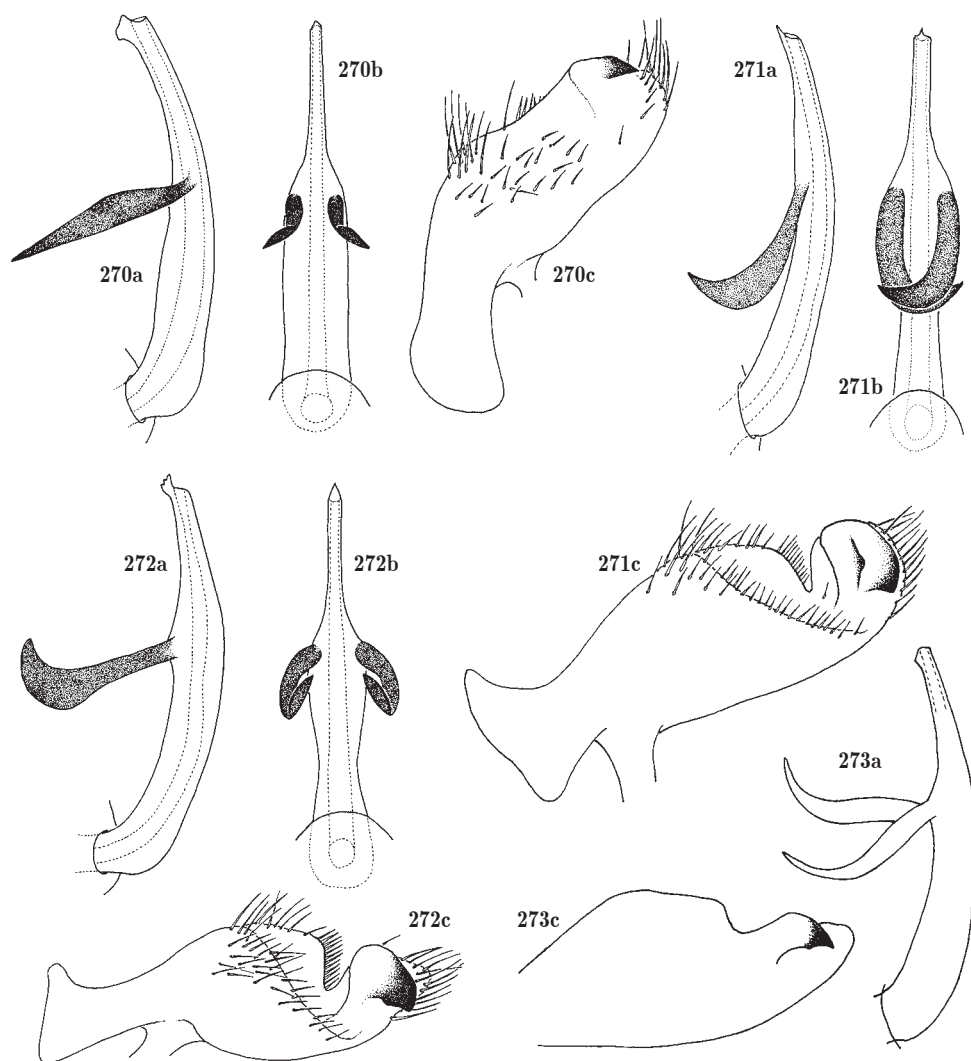
Figs 262-265.

262, *Mahanarva consita* (Melichar) (a-d Paraguay, Misiones; e, syntype): e apex of aedeagus, left lateral view. 263, *M. williamsi* (Lallemand) (syntype). 264, *M. combusta* (Distant) (Bolivia). 265, *M. tibialis* (Signoret) (Peru, Madu de Dior).



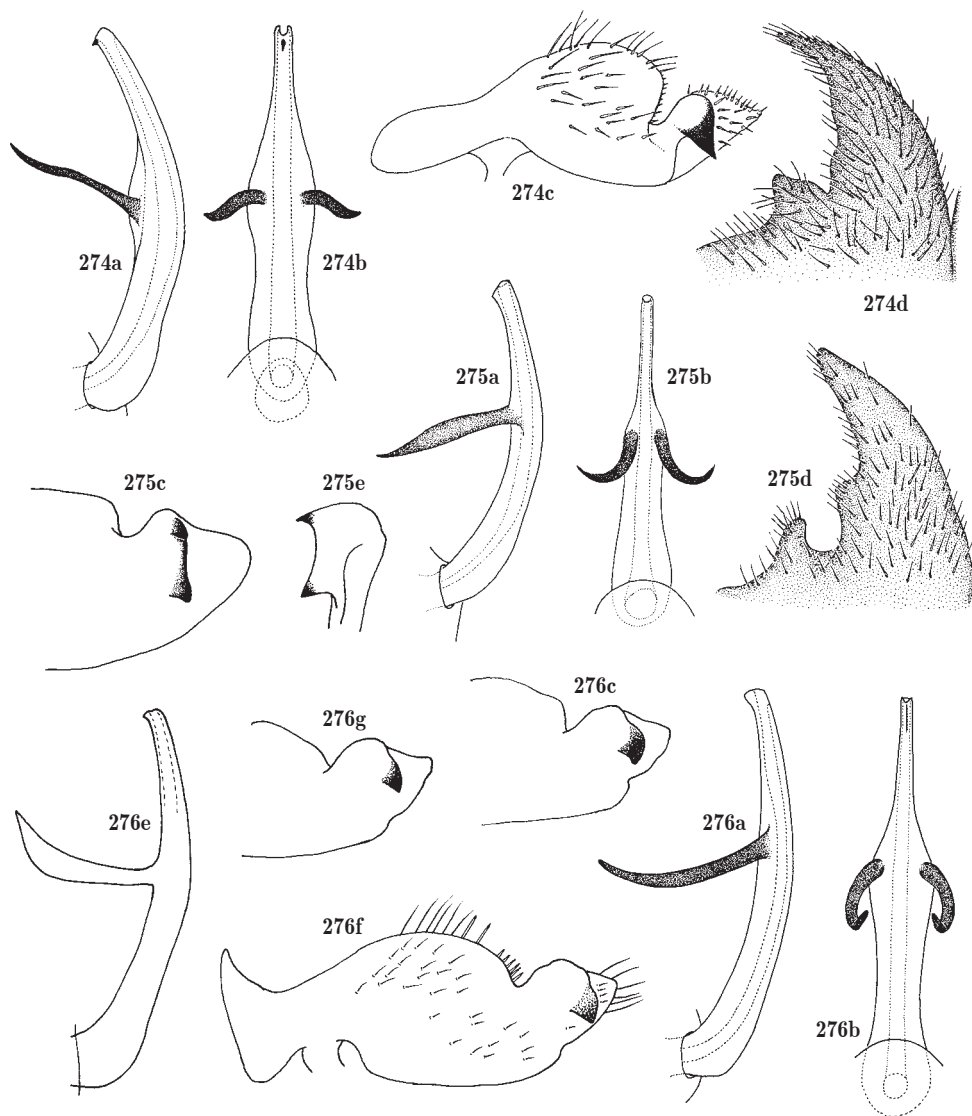
Figs 266-269.

266, *Mahanarva spectabilis* (Distant) (a-c Argentina, S. Venturi; e Brazil, Campo Grande): e paramere, left lateral view. 267, *M. fraseri* (Distant) (syntype). 268, *M. quadripunctata* (Walker) (syntype). 269, *M. rubropicta* (Melichar) (Paraguay, Itapua Contesa).



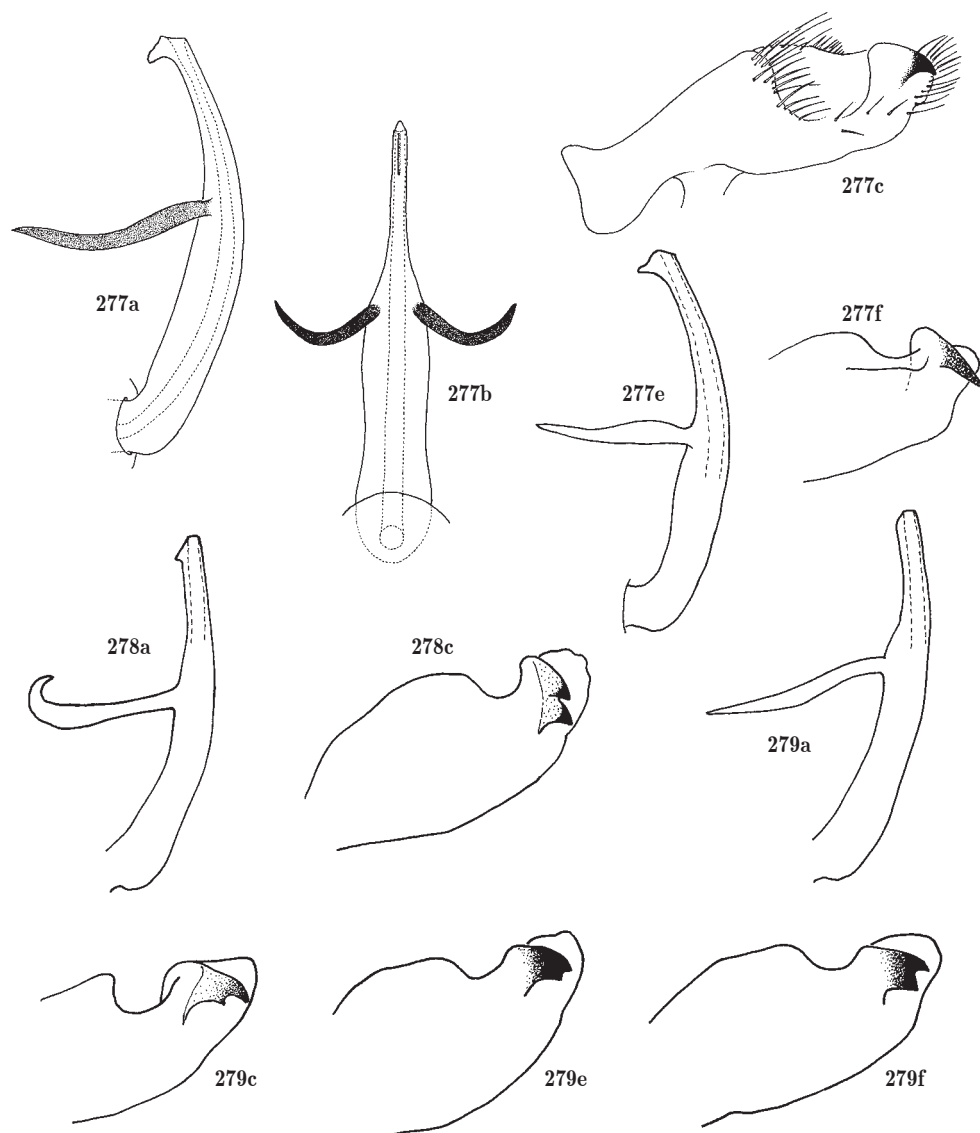
Figs 270-273.

270, *Mahanarva gorgonae* (Lallemand) (syntype). 271, *M. liturata* (Le Peletier & Serville) (Peru, Chinchamayo). 272, *M. paraguayana* (Lallemand) (syntype). 273, *M. mura* (China & Myers) (holotype).



Figs 274-276.

274, *Mahanarva posticata* (Stål) (Brazil, Rio de Janiro). 275, *M. tristis* (Fabricius) ('Guyane Française'): e apex of left paramere, posterior view. 276, *M. fimbriolata* (Stål) (a-c Brazil, Campos; e, f syntype; g 'Br 4'): e aedeagus, left lateral view; g left paramere.



Figs 277-279.

277, *M. andigena* (Jacobi) (a-c, Ecuador, Guayaquil; e, f syntype): e aedeagus, left lateral view; f, left paramere, lateral view. 278, *M. raripila* (Jacobi) (syntype). 279, *M. trifissa* (Jacobi) (a, c syntype; e, f Colombia, Florencia, 7.ii.1901 and 24.i.1897 respectively): e apex of left paramere, lateral view.

Figs **280-303.**

Neotropical Cercopidae.

Unpublished paintings by Horace

Knight for W. L. Distant (see

‘Material and methods’ –

‘Original paintings’).

- 280, *Hemitomaspis caligata* (Jacobi)
- 281, *Hemitomaspis minuscula* (Jacobi)
- 282, *Hyboscarta teres* Jacobi
- 283, *Laccogrypota praelata* (Jacobi)
- 284, *Mahanarva trifissa* (Jacobi)
- 285, *Mahanarva raripila* (Jacobi)
- 286, *Mahanarva andigena* (Jacobi)
- 287, *Maxantonia catella* (Jacobi)
- 288, *Tiodus nuchalis* (Jacobi)
- 289, *Simorhina sciodes* Jacobi
- 290, *Sphenorhina aequinoctialis* (Jacobi)
- 291, *Sphenorhina boliviana* (Jacobi)
- 292, *Sphenorhina clarivenosa* (Jacobi)
- 293, *Sphenorhina claviformis* (Jacobi)
- 294, *Sphenorhina galbana* (Jacobi)
- 295, *Sphenorhina livida* (Jacobi)
- 296, *Sphenorhina parambae* (Jacobi)
- 297, *Sphenorhina quadrifera* (Jacobi)
- 298, *Sphenorhina veterana* (Jacobi)
- 299, *Tropidorhinella onorei* Carvalho & Webb
- 300, *Zuata ohausi* (Jacobi)
- 301, *Zuata ravida* (Jacobi)
- 302, *Zulia morosa* (Jacobi)
- 303, *Laccogrypota gloriosa* (Jacobi)



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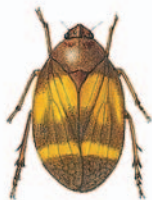
281



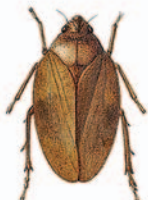
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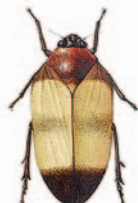
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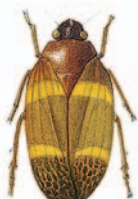
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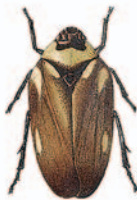
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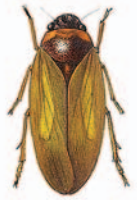
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Figs **304-339.**

 Neotropical Cercopidae types

 (syntypes except where indicated),
 given under original combination
 (Berg UNP, Breddin DEIE, Jacobi
 SMTD). Pins and some body
 parts digitally removed.

 Specimens suffixed with an asterix
 indicates a reversed image. Scale
 bar 5mm.

- 304, *Tomaspis aguirrei* Berg
 305, *Tomaspis correntina* Berg holotype*
 306, *Tomaspis entreriana* Berg holotype
 307, *Tomaspis knoblauchii* Berg
 308, *Tomaspis katzensteinii* Berg
 309, *Tomaspis katzensteinii* Berg
 310, *Tomaspis platensis* Berg*
 311, *Tomaspis platensis* Berg
 312, *Tomaspis perezii* Berg
 313, *Tomaspis ephippiata* Breddin
 314, *Tomaspis erigenea* Breddin
 315, *Tomaspis illuminatula* Breddin
 316, *Tomaspis laqueus* Breddin
 317, *Tomaspis phantastica* Breddin
 318, *Tomaspis nox* Breddin*
 319 *Tomaspis rhodopepla* Breddin
 320, *Tomaspis tettigoniella* Breddin
 321, *Tomaspis* (*Sphenorhina*) *livida* Jacobi
 322, *Tomaspis* (*Sphenorhina*) *aequinotialis* Jacobi
 323, *Tomaspis* (*Sphenorhina*) *andigena* Jacobi
 324, *Tomaspinella angulata* Jacobi
 325, *Tomaspis* (*Monecphora*) *bobischi* Jacobi
 326, *Tomaspis* (*Sphenorhina*) *boliviana* Jacobi
 327, *Tomaspis* (*Triecphora*) *caligata* Jacobi
 328, *Tomaspis* (*Triecphora*) *catella* Jacobi
 329, *Tomaspis* (*Monecphora*) *centurio* Jacobi
 330, *Tomaspis clarissa* Jacobi
 331, *Tomaspis clarivenosa* Jacobi
 332, *Tomaspis claviformis* Jacobi,
 333, *Tomaspis discors* Jacobi holotype
 334, *Tomaspis* (*Sphenorhina*) *emerita* Jacobi
 335, *Tomaspis* (*Sphenorhina*) *galbana* Jacobi
 336, *Tomaspis* (*Sphenorhina*) *inflata* Jacobi lectotype
 337, *Tomaspis* (*Sphenorhina*) *gloriosa* Jacobi
 338, *Ischnorhina invalida* Jacobi
 339, *Tomaspis lucifera* Jacobi



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Figs 340-371.

 Neotropical Cercopidae types

 (syntypes except where indicated),
 given under original combination
 (Jacobi SMTD, Fallou MNHN,
 Fennah BMNH) and non-types.

Pins and some body parts

digitally removed. Specimens

suffixed with an asterix indicates

a reversed image. Scale bar 5mm.

- 340, *Tomaspis* (*Triecphora*) *minuscule* Jacobi
 341, *Tomapis* (*Monecphora*) *morosa* Jacobi*
 342, *Tomaspis* (*Sphenorhina*) *veterana* Jacobi
 343, *Tomaspis* (*Monecphora*) *nuchalis* Jacobi
 344, *Tomaspis* (*Triecphora*) *ohausi* Jacobi
 345, *Tomaspisinella* *oneraria* Jacobi
 346, *Tomaspis* (*Sphenorhina*) *parambae* Jacobi
 347, *Tomaspis* (*Triecphora*) *pica* 'var. d', Jacobi
 348, *Ischnorhina* *praelata* Jacobi
 349, *Ischnorhina* *praetor* Jacobi
 350, *Tomaspis* (*Sphenorhina*) *quadripera* Jacobi
 351, *Tomaspis* (*Monecphora*) *ruripila* Jacobi
 352, *Tomaspis* (*Triecphora*) *ravida* Jacobi
 353, *Hyboscarta* *rubrica* Jacobi
 354, *Simorhina* *sciodes* Jacobi
 355, *Tomaspis* (*Triecphora*) *smaragdina* Jacobi
 356, *Hyboscarta* *teres* Jacobi
 357, *Ischnorhina* *partita* Jacobi
 358, *Tomaspis* (*Sphenorhina*) *trifissa* Jacobi
 359, *Tomaspis* *trivittata* Jacobi
 360, *Monecphora* *limbata* Fallou
 361, *Monecphora* *ruficollis* Fallou
 362, *Sphenorhina* *rufomaculata* Fallou*
 363, *Monecphora* *sipolisi* (Fallou) (non-type, Brazil,
 'Minas Geraes')
 364, *Aeneolamia* *flavilatera* *talmana* Fennah
 365, *Aeneolamia* *flavilatera* *caripensis* Fennah
 366, *Aeneolamia* *flavilatera* *funnebris* Fennah
 367, *Aeneolamia* *flavilatera* *mesae* Fennah
 368, *Aeneolamia* *postica* *occidentalis* Fennah holotype
 369, *Aeneolamia* *reducta* *montana* Fennah
 370, *Aeneolamia* *postica* *turrialbae* Fennah holotype
 371, *Aeneolamia* *varia* *campestris* Fennah



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Figs **372-407.**

 Neotropical Cercopidae types

 (syntypes except where indicated),
 given under original combination
 (BMNH). Pins and some body
 parts digitally removed.

 Specimens suffixed with an asterix
 indicates a reversed image.

Scale bar 5mm.

- 372, *Aeneolamia postica sanctaerosae* Fennah holotype
- 373, *Aeneolamia varia costata* Fennah
- 374, *Aeneolamia varia costata* Fennah*
- 375, *Aeneolamia varia deusta* Fennah*
- 376, *Aeneolamia varia fallax* Fennah
- 377, *Aeneolamia varia lugens* Fennah
- 378, *Aeneolamia varia nigrescens* Fennah
- 379, *Aeneolamia varia nigrescens* Fennah
- 380, *Aeneolamia varia pallidior* Fennah
- 381, *Aeneolamia varia paspali* Fennah
- 382, *Aeneolamia varia sontica* Fennah
- 383, *Aeneolamia varia sordida* Fennah holotype
- 384, *Aeneolamia varia tomentosa* Fennah
- 385, *Delassor tristis monagasi* Fennah
- 386, *Delassor tristis quadrimaculata* Fennah holotype
- 387, *Aeneolamia postica campecheana* Fennah
- 388, *Isozulia flamen* Fennah paratype
- 389, *Isozulia charazus* Fennah holotype*
- 390, *Isozulia charazus* Fennah paratype*
- 391, *Isozulia christenseni jujuyana* Fennah paratype
- 392, *Isozulia minor* Fennah holotype
- 393, *Neozulia vilior costaricensis* Fennah holotype
- 394, *Prosapia latens* Fennah*
- 395, *Prosapia latens turrialbae* Fennah holotype
- 396, *Prosapia simulans ripalis* Fennah holotype
- 397, *Prosapia simulans teapana* Fennah holotype
- 398, *Prosapia simulans zunilana* Fennah holotype
- 399, *Prosapia simulans sordida* Fennah holotype
- 400, *Prosapia simulans mulieris* Fennah
- 401, *Tiodus rufescens* Fennah holotype
- 402, *Hyboscarta caduca* Fennah
- 403, *Tomaspinella araguana* Fennah
- 404, *Vorago boxi* Fennah
- 405, *Vorago nanta* Fennah holotype
- 406, *Zulia charon* Fennah
- 407, *Zulia vespillo* Fennah



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Figs 408-440.

 Neotropical Cercopidae types

(syntypes except where indicated), given under original combination (Melichar MM, Fabricius ZMUC (except where indicated), Schmidt MIZW). Pins and some body parts digitally removed. Specimens suffixed with an asterisk indicates a reversed image. Scale bar 5mm.

- 408, *Mahanarva aenea* Melichar
- 409, *Tomaspis cingula* Melichar
- 410, *Tomaspis comitata* Melichar
- 411, *Triecphora consita* Melichar
- 412, *Triecphora curvata* Melichar
- 413, *Tomaspis discoidea* Melichar
- 414, *Triecphora partenina* Melichar
- 415, *Triecphora rubropicta* Melichar
- 416, *Tomaspis rufifrons* Melichar
- 417, *Tomaspis semirufa* Melichar
- 418, *Tomaspis solita* Melichar
- 419, *Mahanarva soluta* Melichar
- 420, *Tomaspis trifasciata* Melichar
- 421, *Cercopis coccinea* Fabricius (Brazil, BMNH)
- 422, *Cercopis ephippium* Fabricius
- 423, *Cercopis lineola* Fabricius
- 424, *Cercopis pubescens* Fabricius
- 425, *Cercopis schach* Fabricius (HMAG)
- 426, *Cercopis sanguinea* Fabricius holotype
- 427, *Cercopis tristis* Fabricius
- 428, *Cercopis varia* Fabricius*
- 429, *Hyboscarta andina* Schmidt
- 430, *Laccogrypota atrocoerulea* Schmidt holotype*
- 431, *Laccogrypota basirufa* Schmidt holotype*
- 432, *Schistogonia bidentata* Schmidt holotype*
- 433, *Ischnorhina bipars* Schmidt*
- 434, *Mazantonia cantatrix* Schmidt holotype*
- 435, *Mazantonia cantator* Schmidt holotype
- 436, *Homalogrypota cinnabarina* Schmidt*
- 437, *Tomaspis furcata* var. *completa* Schmidt*
- 438, *Typeschata intermedia* Schmidt
- 439, *Laccogrypota costalis* Schmidt holotype*
- 440, *Homalogrypota hyalinipennis* Schmidt holotype*



Figs **441-471.**

 Neotropical Cercopidae types

 (syntypes except where indicated),
 given under original combination
 (Schmidt MIZW, Stål NRS). Pins
 and some body parts digitally
 removed. Specimens suffixed with
 an asterix indicates a reversed
 image. Scale bar 5mm.

- 441, *Laccogrypota inca* Schmidt holotype
 442, *Tropidorhinella montana* Schmidt
 443, *Hyboscarta pehlkei* Schmidt
 444, *Laccogrypota pulchra* Schmidt*
 445, *Luederwaldtia rubripennis* Schmidt
 446, *Tomaspis furcata* var. *rufipennis* Schmidt* holotype
 447, *Pacanthocnemis simillima* Schmidt*
 448, *Schistogonia simulans* Schmidt*
 449, *Ischnorhina surinamensis* Schmidt*
 450, *Homologrypota interrupta* Schmidt
 451, *Laccogrypota trimaculata* Schmidt holotype (image supplied,
 MZUSP)
 452, *Tomaspis fasciaticollis* Stål lectotype
 453, *Monecphora fimbriolata* Stål
 454, *Monecphora fasciatipennis* Stål
 455, *Monecphora flavopicta* Stål
 456, *Monecphora lepida* Stål
 457, *Tomaspis limbata* Stål
 458, *Monecphora nigratarsis* Stål
 459, *Tomaspis ornatipennis* Stål*
 460, *Monecphora pellucens* Stål
 461, *Monecphora posticata* Stål
 462, *Monecphora semiflava* Stål
 463, *Monecphora semilutea* Stål
 464, *Tomaspis varians* Stål
 465, *Monecphora vinula* Stål
 466, *Tomaspis nuptialis* Stål
 467, *Tomaspis pictipennis* Stål
 468, *Tomaspis sepulchralis* Stål
 469, *Tomaspis vittatipennis* Stål
 470, *Sphenorhina acuta* Stål
 471, *Sphenorhina cruralis* Stål



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Figs 472-507.

 Neotropical Cercopidae types

 (syntypes except where indicated),
 given under original combination
 (BMNH, except where indicated).

Pins and some body parts

digitally removed. Specimens

suffixed with an asterisk indicates

a reversed image.

Scale bar 5mm.

- 472, *Baetkia maroniensis* Lallemand
 473, *Bradypteroscarta infusata* Lallemand
 474, *Carpentiera insignis* Lallemand holotype
 475, *Chinana argentina* Lallemand*
 476, *Hemiplagiophlebotena multicolor* Lallemand
 477, *Horvathiella rubrovittata* Lallemand
 478, *Hyboscarta melichari* Lallemand
 479, *Ischnorhina binotata* Lallemand
 480, *Ischnorhina williamsi* Lallemand
 481, *Ischnorhina consul* var. *jacobii* Lallemand
 (= *I. consul* var. b, Jacobi)
 482, *Ischnorhina consul* var. *indistincta* Lallemand
 (= *I. consul* var. a, Jacobi)
 483, *Laccogrypota amazonensis* Lallemand (MNHN)
 484, *Laccogrypota volxemi* Lallemand (IRSNB) (holotype)
 485, *Lujana multicolor* Lallemand holotype
 486, *Monecphora albofasciata* Lallemand
 487, *Monecphora alboornata* Lallemand*
 488, *Monecphora birubromaculata* Lallemand
 489, *Monecphora brunneorubra* Lallemand*
 490, *Monecphora carbonaria* Lallemand
 491, *Monecphora christenseni* Lallemand
 492, *Monecphora coerulea* Lallemand
 493, *Monecphora decorata* Lallemand
 494, *Monecphora ferranti* Lallemand
 495, *Monecphora fluvialis* Lallemand
 496, *Monecphora fluvialis* var. *bipunctata* Lallemand (MNHN)
 497, *Monecphora fluvialis* var. *lateralis* Lallemand
 498, *Monecphora fortunata* Lallemand
 499, *Monecphora fossor* Lallemand
 500, *Monecphora laevigata* Lallemand
 501, *Monecphora longitudinalis* Lallemand
 502, *Monecphora longula* Lallemand
 503, *Monecphora moreirae* Lallemand
 504, *Monecphora nigroapicata* Lallemand
 505, *Monecphora pallida* Lallemand
 506, *Monecphora pseudo flavopicta* Lallemand
 507, *Monecphora reducta* Lallemand



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Figs 508-543.

 Neotropical Cercopidae types

 (syntypes except where indicated),
 given under original combination
 (BMNH, except where indicated);
 pins and some body parts
 digitally removed; specimens
 suffixed with an asterix indicates
 a reversed image; scale bar 5mm.

- 508, *Monecphora transversa* Lallemand
 509, *Monecphora trifasciata* Lallemand
 510, *Monecphora williamsi* Lallemand*
 511, *Neolaccogrypota brunnea* Lallemand
 512, *Neolaccogrypota brunnea nigricans* Lallemand*
 513, *Neomonecphora laurentana* Lallemand*
 514, *Pachypterinella fusca* Lallemand*
 515, *Sphenorhina biformis* Lallemand
 516, *Sphenorhina brunnea* Lallemand*
 517, *Sphenorhina colombiana* Lallemand
 518, *Sphenorhina coronata* Lallemand
 519, *Sphenorhina croceofasciata* Lallemand
 520, *Sphenorhina cyanescens* Lallemand holotype (ZMUH)
 521, *Sphenorhina fallaciosa* Lallemand holotype
 522, *Sphenorhina fissurata* Lallemand
 523, *Sphenorhina gorgonae* Lallemand
 524, *Sphenorhina hebes* var. *rubens* Lallemand holotype
 525, *Sphenorhina insularis* Lallemand
 526, *Sphenorhina intricator* Lallemand holotype
 527, *Sphenorhina lemoulti* Lallemand
 528, *Sphenorhina modesta* Lallemand
 529, *Sphenorhina monticola* Lallemand
 530, *Sphenorhina nigrotaenia* Lallemand
 531, *Sphenorhina normandiae* Lallemand
 532, *Sphenorhina paraguayana* Lallemand*
 533, *Sphenorhina peruana* Lallemand
 534, *Sphenorhina phalerata limbata* Lallemand*
 535, *Sphenorhina rubra* var. *obliterata* Lallemand paratype
 536, *Sphenorhina rubra* var. *pallida* Lallemand lectotype
 537, *Sphenorhina sanguinipaga* Lallemand
 538, *Sphenorhina simulans* var. *unifasciata* Lallemand
 539, *Sphenorhina suffusa* var. *walkeri* Lallemand holotype*
 540, *Sphenorhina translucida* Lallemand
 541, *Sphenorhina tucurricae* Lallemand
 542, *Sphenorhina undulata* Lallemand*
 543, *Sphenorhina victoriae* Lallemand



Figs 544-578.

Neotropical Cercopidae types

(syntypes except where indicated),
given under original combination
(BMNH, except where indicated).

Pins and some body parts

digitally removed. Specimens

suffixed with an asterisk indicates

a reversed image. Scale bar 5mm.

- 544, *Tomaspis assimilis* var. *fowleri* Lallemand holotype
 545, *Tomaspis bipunctata* Lallemand
 (= *T. (Sphenorhina) phalerata* var. b, Jacobi)
 546, *Tomaspis bipunctata* Lallemand
 547, *Tomaspis chapada* var. *distanti* Lallemand
 548, *Tomaspis compressa* var. *distanti* Lallemand
 549, *Tomaspis jacobii* Lallemand
 (= *T. (Sphenorhina) phalerata* var. a, Jacobi)
 550, *Tomaspis lunulata* Lallemand
 551, *Tomaspis ochraceorosea* Lallemand
 552, *Tomaspis pica interrupta* Lallemand
 553, *Tomaspis ravidella* Lallemand*
 554, *Tomaspis seguyi* Lallemand
 555, *Tomapis saccharina distanti* Lallemand
 556, *Tomaspis saccharina tricolor* Lallemand
 557, *Tomaspis versicolor* Lallemand
 558, *Tomaspis (T.) walkeri* Lallemand
 559, *Tomaspinella bimaculata* Lallemand
 560, *Tomaspinella calangana* Lallemand
 561, *Tomaspinella fusca* Lallemand
 562, *Tomaspinella infusata* Lallemand
 563, *Tomaspinella luteomaculata* Lallemand
 564, *Tomaspinella marginata* Lallemand holotype
 565, *Tomaspinella parva* Lallemand
 566, *Tomaspinella pseudoripuaris* Lallemand*
 567, *Tomaspinella punctata* Lallemand holotype*
 568, *Tomaspinella sierrana* Lallemand
 (tegmen digitally repaired)
 569, *Tomaspinella ripuaris* Lallemand
 570, *Tomaspinella transita* Lallemand
 571, *Triecphora bahiana* Lallemand
 572, *Triecphora fortunata* Lallemand holotype
 573, *Triecphora innotata* Lallemand holotype*
 574, *Triecphora nigripes* Lallemand holotype*
 575, *Triecphora praeminiata* var. *chiriquensis* Lallemand (MNHN)
 576, *Triecphora rubescens* Lallemand holotype
 577, *Triecphora signifera* Lallemand
 578, *Triecphora speciosa* Lallemand



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Figs **579-613.**

 Neotropical Cercopidae types

(syntypes except where indicated), given under original combination, and non-types (BMNH). Pins and some body parts digitally removed. Specimens suffixed with an asterix indicates a reversed image. Scale bar 5mm.

- 579, *Hyboscarta tricolor* Distant
- 580, *Ischnorhina valida* Distant
- 581, *Ischnorhina junco* Distant*
- 582, *Korobona conspicua* Distant
- 583, *Korobona lineata* Distant holotype
- 584, *Mahanarva funebris* (Distant) (non-type, 'Chanchmayo')
- 585, *Mahanarva indicata* Distant
- 586, *Mahanarva uniformis* Distant*
- 587, *Makonaima circumducta* Distant
- 588, *Makonaima rivularis* Distant
- 589, *Neomonecphora insignis* Distant*
- 590, *Sphenorhina biolleyi* Distant*
- 591, *Sphenorhina bogotana* Distant
- 592, *Sphenorhina conspicua* Distant
- 593, *Sphenorhina costaricensis* Distant
- 594, *Sphenorhina grandis* Distant
- 595, *Sphenorhina plagiata* Distant
- 596, *Sphenorhina ruida* Distant
- 597, *Sphenorhina septemnotata* Distant
- 598, *Sphenorhina tullia* Distant
- 599, *Tomaspis astralis* Distant
- 600, *Tomaspis bogotensis* Distant*
- 601, *Tomaspis brasiliensis* Distant
- 602, *Tomaspis chapada* Distant
- 603, *Tomaspis chilensis* Distant holotype
- 604, *Tomaspis combusta* Distant
- 605, *Tomaspis consanguinea* Distant
- 606, *Tomaspis dimorpha* Distant
- 607, *Tomaspis dissimilis* Distant
- 608, *Tomaspis distincta* Distant
- 609, *Tomaspis dominicanus* Distant
- 610, *Tomaspis fraseri* Distant
- 611, *Tomaspis fryi* Distant
- 612, *Tomaspis hebes* Distant
- 613, *Triecphora johannae* Distant holotype



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Figs 614-645.

Neotropical Cercopidae types

(holotypes except where indicated), given under original combination (BMNH, except where indicated). Pins and some body parts digitally removed. Specimens suffixed with an asterisk indicates a reversed image. Scale bar 5mm.

- 614, *Tomaspis jonesi* Distant syntype
 615, *Tomaspis multicolor* Distant syntype*
 616, *Tomaspis noctua* Distant syntype*
 617, *Tomaspis parana* Distant syntype (Distant's '@@')
 618, *Tomaspis proserpina* Distant syntype
 619, *Tomaspis quota* Distant syntype*
 620, *Tomaspis saccharina* Distant syntype
 621, *Tomaspis spectabilis* Distant syntype*
 622, *Tunaima brunneolutea* Carvalho
 (non-type, Brazil, 'Leopoldo')
 623, *Deois* (*D.*) *knighti* Carvalho & Webb paratype
 624, *Deois* (*D.*) *sexpunctata* Carvalho & Webb (DZUP)
 625, *Deois* (*Pandysia*) *constricta* Carvalho & Webb paratype
 626, *Mahanarva* (*Ipiranga*) *bahiaensis* Carvalho & Webb
 627, *Maxantonia bifurcata* Carvalho & Webb
 628, *Neosphenorhina curvipenis* Carvalho & Webb
 629, *Sphenorhina brevispina* Carvalho & Webb
 630, *Sphenorhina minuta* Carvalho & Webb
 631, *Sphenorhina nigricephala* Carvalho & Webb
 632, *Tropidorhinella onorei* Carvalho & Webb
 633, *Zuata luteofascia* Carvalho & Webb
 634, *Deois spinulata* Costa & Sakakibara paratype
 635, *Deois* (*Pandysia*) *crenulata* Costa & Sakakibara paratype
 636, *Deois* (*Pandysia*) *bergi* Costa & Sakakibara paratype
 637, *Deoisella fasciata* Costa & Sakakibara paratype
 638, *Neosphenorhina schombergi* Costes & Webb
 paratype (AMNH)
 639, *Ischnorhina quadrimelasma* Costes & Webb (NMNH)
 640, *Laccogrypota quadrilineata* Costes & Webb (NMNH)*
 641, *Neolaccogrypota youngi* Costes & Webb (NMNH)
 642, *Sphenorhina rubrolurida* Sakakibara & Carvalho
 643, *Sphenorhina danielssoni* Sakakibara & Carvalho (MZLU)
 644, *Sphenorhina huggerti* Sakakibara & Carvalho (MZLU)
 645, *Sphenorhina unifasciata* Sakakibara & Carvalho (MZLU)



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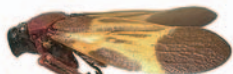
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Figs **646-680.**

 Neotropical Cercopidae types

(holotypes except where

indicated), given under original

combination, and non-types

(BMNH). Pins and some body

parts digitally removed.

Specimens suffixed with an asterisk

indicates a reversed image. Scale

bar 5mm.

646, *Catrimania semivittata* (Walker)

(non-type, Brazil, 'Sinop')

647, *Monecphora angusta* Walker648, *Monecphora basalis* Walker649, *Monecphora bifascia* Walker syntype650, *Monecphora demissa* Walker651, *Monecphora flexuosa* Walker652, *Monecphora includens* Walker653, *Monecphora incompleta* Walker*654, *Monecphora indentata* Walker syntype655, *Monecphora inferens* Walker656, *Monecphora insignis* Walker syntype657, *Monecphora integra* Walker syntype658, *Monecphora neglecta* Walker*659, *Monecphora ornata* Walker660, *Monecphora postica* Walker661, *Monecphora radiata* Walker662, *Monecphora rubicunda* Walker syntype663, *Monecphora semifascia* Walker664, *Monecphora soligena* Walker syntype665, *Monecphora solita* Walker syntype666, *Tomaspis similis* Walker syntype667, *Monecphora tripars* Walker syntype668, *Monecphora vacillans* Walker syntype669, *Monecphora viridescens* Walker670, *Monecphora vittata* Walker671, *Phytozamia latifascia* Walker syntype672, *Sphenorhina assimilis* Walker673, *Sphenorhina bipars* Walker*674, *Sphenorhina bipustulata* Walker675, *Sphenorhina bivitta* Walker*676, *Ferorhinella brevis* Walker

(non-type, 'Brazil Lallemand Coll.')

677, *Sphenorhina cercopoides* Walker678, *Sphenorhina cruciata* Walker679, *Sphenorhina duodecimpunctata* Walker type (?)680, *Sphenorhina elliptica* Walker syntype



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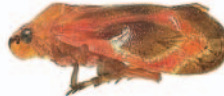
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Figs **681-715.**

Neotropical Cercopidae types
(syntypes except where indicated),
given under original
combination, and non-types
(BMNH). Pins and some body
parts digitally removed.
Specimens suffixed with an asterisk
indicates a reversed image. Scale
bar 5mm.

- 681, *Sphenorhina flammans* Walker
682, *Sphenorhina frontalis* Walker
683, *Sphenorhina inclusa* Walker
684, *Sphenorhina lineata* Walker holotype
685, *Sphenorhina metallica* Walker
686, *Sphenorhina notabilis* Walker
687, *Sphenorhina notata* Walker holotype
688, *Sphenorhina ocellata* Walker
689, *Sphenorhina parallela* Walker holotype
690, *Sphenorhina quadriguttata* Walker holotype
691, *Sphenorhina quadripunctata* Walker
692, *Sphenorhina rufivaria* Walker*
693, *Sphenorhina scindens* Walker*
694, *Sphenorhina selecta* Walker
695, *Sphenorhina semifascia* Walker
696, *Sphenorhina simulans* Walker holotype
697, *Sphenorhina stellata* Walker holotype
698, *Sphenorhina suffusa* Walker
699, *Sphenorhina transiens* Walker holotype
700, *Sphenorhina unifascia* Walker holotype
(tegmen digitally repaired)
701, *Sphenorhina venosa* Walker holotype
702, *Sphenorhina xanthomela* Walker holotype
703, *Tomaspis albifascia* Walker holotype*
704, *Tomaspis antica* Walker*
705, *Tomaspis decernens* Walker holotype
706, *Tomaspis diluta* Walker holotype
707, *Tomaspis distinguenda* Walker holotype
708, *Tomaspis divisa* Walker holotype
709, *Tomaspis pallifascia* Walker
710, *Tomaspis perfecta* Walker
711, *Tomaspis simplex* Walker
712, *Triecphora bella* Walker holotype
713, *Triecphora contigua* Walker holotype
714, *Triecphora propinqua* Walker holotype
715, *Triecphora scita* Walker



Figs **716-748.**

 Neotropical Cercopidae types

(holotypes except where

indicated), given under original

combination (MIZW, except

where indicated). Pins and some

body parts digitally removed.

Specimens suffixed with an asterix

indicates a reversed image. Scale

bar 5mm.

- 716, *Laccogrypota dentata* Nast (NMW)*
 717, *Maxantonia aurantiaca* Nast paratype*
 718, *Maxantonia certa* Nast
 719, *Maxantonia cognata* Nast*
 720, *Maxantonia diversa* Nast*
 721, *Maxantonia flabellata* Nast paratype
 722, *Maxantonia galeata* Nast
 723, *Maxantonia gracilis* Nast*
 724, *Maxantonia inepta* Nast*
 725, *Neolaccogrypota jaczewskii* Nast*
 726, *Maxantonia lobata* Nast*
 727, *Maxantonia opulenta* Nast
 728, *Maxantonia stabilis* Nast
 729, *Maxantonia jelskii* Nast*
 730, *Neomonecphora obtusa* Nast (NMW)
 731, *Neomonecphora robusta* Nast (NMW)*
 732, *Schistogonia neglecta* Nast (BMNH) paratype
 733, *Sphenorhina confusa* Nast (BMNH)*
 734, *Sphenorhina cygnus* Nast (BMNH)
 735, *Sphenorhina digitata* Nast (BMNH)
 736, *Sphenorhina distans* Nast (BMNH)*
 737, *Sphenorhina femorata* Nast (BMNH)
 738, *Sphenorhina inflexa* Nast (BMNH) paratype
 739, *Sphenorhina nicaraguana* Nast (BMNH)
 740, *Sphenorhina panamensis* Nast (BMNH)
 741, *Sphenorhina punctum* Nast (BMNH)
 742, *Sphenorhina quezaltanus* Nast*
 743, *Sphenorhina relata* Nast (BMNH)
 744, *Sphenorhina secundarius* Nast
 745, *Tiodus elongatus* Nast*
 746, *Tiodus minor* Nast (BMNH) (tip of tegmen re-attached)
 747, *Tomaspis parana* var. *major* Nast (BMNH) syntype
 748, *Tomaspisina rubromarginata* Nast (NMW)



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Figs 749-782.

Neotropical Cercopidae. Types (holotypes except where indicated), given under original combination, and non-types (BMNH, except where indicated). Pins and some body parts digitally removed. Specimens suffixed with an asterisk indicates a reversed image. Scale bar 5mm.

- 749, *Carachata dimorphica* Carvalho & Sakakibara (non-type, 'Brazil, Vilhena')
- 750, *Maxantonia quercus* Carvalho & Sakakibara
- 751, *Maxantonia pudica* Carvalho & Sakakibara paratype
- 752, *Tomaspis morialis* China & Myers
- 753, *Tomaspis mura* China & Myers paratype
- 754, *Tomaspis picklesi* China & Myers
- 755, *Tomaspis radialis* China & Myers
- 756, *Tomaspis rhynchosporae* China & Myers paratype
- 757, *Cercopis furcata* Germar (ZMUH) syntype
- 758, *Cercopis sororia* Germar (ZMUH) syntype
- 759, *Deois (Deois) terrea* (Germar) (non-type, 'Argentina, Villa Ana')
- 760, *Sphenorhina melanoptera* (Germar) (non-type, 'Peru, 13.viii.1971')
- 761, *Maxantonia punctigera* (Germar) (non-type, Brazil 'Para')
- 762, *Tomaspis carmodyi* Kershaw syntype
- 763, *Cicada rubra* Linnaeus neotype
- 764, *Monecphora inconclusa* Metcalf syntype
- 765, *Monecphora insignifica* Metcalf*
- 766, *Deois (D.) piraporae* Sakakibara paratype*
- 767, *Deois (D.) rubropicta* Sakakibara (non-type, 'Brazil, 22.x.1981')*
- 768, *Sinopia signata* Sakakibara paratype
- 769, *Kanaima dubia* Stanik & Cavichioli paratype
- 770, *Tomaspis flavilatera* Urich
- 771, *Tomaspis pulchralis* Valdés Ragués (IESH) syntype
- 772, *Choconta circulata* (Guerin-Meneville) (non-type, Colombia?, 'New Granada')
- 773, *Huaina inca* (Guerin-Meneville) (non-type, 'Mexico, Vera Cruz')
- 774, *Mahanarva liturata* (Le Peletier & Serville) (non-type, 'Peru, Chinchamayo')
- 775, *Neomonecphora apicalis* (Le Peletier & Serville) (non-type, French Guiana, 'Roches de Kourou')
- 776, *Baetica compressa* (Le Peletier & Serville) (non-type, 'Cayenne')
- 777, *Marcion equestris* (Lethierry) (non-type, 'Venezuela, 19.x.1947')
- 778, *Ocoaxo lineolatus* (Amyot & Serville) (non-type, 'Mexico, 14.vii.1933')
- 779, *Aeneolamia varia bodkini* (Williams) (non-type, 'B. Guiana, Wauna')
- 780, *Prosapia ignipectus* (Fitch) (non-type, USA, det. V. Thompson)
- 781, *Mahanarva tibialis* (Signoret) (non-type, 'Peru')*
- 782, *Deois (Deois) mourei* Cavichioli & Sakakibara (non-type, 'Brazil, Curitiba, 6.xii.1981')



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Figs **783-809.**

 Neotropical Cercopidae types

 (syntypes except where indicated),
 given under original combination
 (BMNH, except where indicated).

Pins and some body parts

digitally removed. Specimens

 suffixed with an asterix indicates
 a reversed image.

Scale bar 5mm.

- 783, *Neaenus varius* Fowler
 784, *Sphenorhina turpior* Fowler*
 785, *Tomaspis apicifasciata* Fowler (*Tomaspisinella*)
 786, *Tomaspis discontinua* Fowler
 787, *Tomaspis handlirschi* Fowler (NMW) holotype
 788, *Tomaspis insignita* Fowler (NMW)
 789, *Tomaspis jugata* Fowler (NMW) holotype
 790, *Tomaspis limbata* Fowler (larger of two syntypes, NMW)
 791, *Tomaspis nolckeni* Fowler (NMW)
 792, *Tomaspis ignobilis* Fowler
 793, *Tomaspis imperans* Fowler
 794, *Tomaspis imperans* var. *sexnotata* Fowler
 795, *Tomaspis praenitida* Fowler
 796, *Tomaspis intermedia* Fowler
 797, *Tomaspis laterinotata* Fowler (HEC)
 798, *Tomaspis lepidior* Fowler*
 799, *Tomaspis miles* Fowler holotype
 800, *Tomaspis mylabroides* Fowler
 801, *Tomaspis obscura* Fowler (NMW) holotype
 802, *Tomaspis* (*Monecphora*) *picata* var. *lugubris* Fowler (NMW)
 803, *Tomaspis* (*Monecphora*) *picata* Fowler (NMW)
 804, *Tomaspis praeminiata* Fowler
 805, *Tomaspis* (*Sphenorhina*) *cruzminor* Fowler (NMW)*
 806, *Tomaspis quatuordecimnotata* Fowler
 807, *Tomaspis semimaculata* Fowler
 808, *Tomaspis stygia* Fowler
 809, *Tomaspis vilior* Fowler
 810, *Cercopis marginata* Fabricius (HMAG, image supplied)*
 811, *Sphenorhina phalerata* (Jacobi) (non-type, Bolivia, Yungas)
 812, *Neolaccogrypota destituta* Nast (allotype, MIZW)
 813, *Sphenorhina pubescens* var. *aequatoriana*
 Lallemand (ZMUH)*
 814, *Ischnorhina consul* Jacobi (SMTD, image supplied)
 815-816, *Neaenus luteosignatus* (Valdés Ragués)
 (non-type, Cuba, NCSU)
 817, *Tomaspis nigropraetexta* Lallemand
 (HNHM, image supplied)
 818, *Tomaspis quadripustulata* Melichar (MM, image supplied)



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